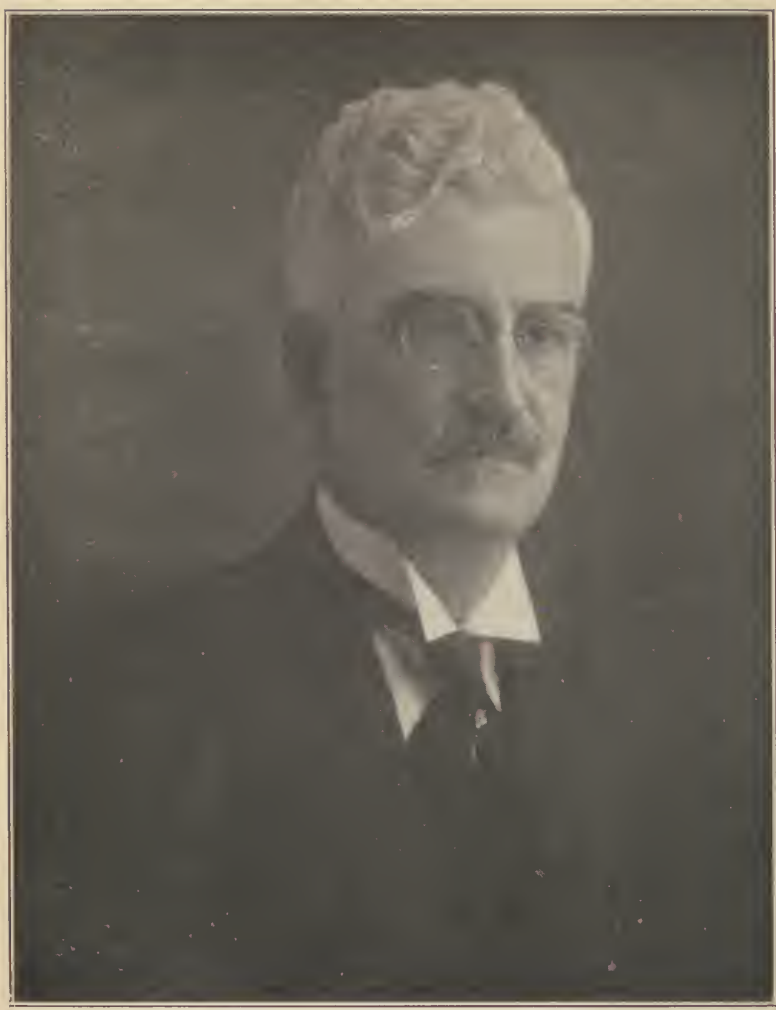


R. Lincoln Graham

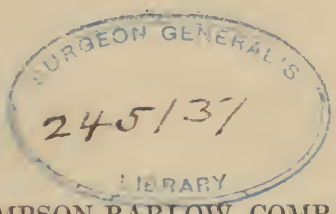
HYDRO-HYGIENE

THE SCIENCE OF CURING BY WATER

BY

R. LINCOLN GRAHAM, M.D.

A COMPLETE AND PRACTICAL GUIDE TO THE USE OF WATER BOTH INTERNALLY AND EXTERNALLY FOR THE PREVENTION AND ERADICATION OF DISEASE



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DEDICATION

This work is dedicated to that martyr of science, Dr. Adolph Guenther, who, alone and unaided, in his little "Bad Anstaldt" on Artillerie Strasse, Berlin, withstood the scorn and contempt of his colleagues in his persistent efforts to give Nature natural aid in correcting abnormalities. Apparently in vain he wrote and lectured, expounding Nature's marvelous efficiency in correcting defects.

By his simple methods, without medicine and without equipment, he demonstrated before the staff of the Charitie Hospital perfect recovery in twenty-eight cases of a malignant form of diphtheria—with no trace of untoward after-effects.

Never will I forget the grieved expression that came over his countenance when, notwithstanding these unprecedented results, his method of treatment was refused by the Medical Staff of the Hospital, and by the Medical Faculty as a body.

Like all pioneers and missionaries, Prof. Guenther was an enthusiast. He lived solely for science and for the service of mankind. This work is but an extension of his teachings, with additional discoveries of my own.

R. Lincoln Graham, M.D.

INTRODUCTION

PROGRESS in medical science is, as a rule, achieved only after overcoming the manifestations of a fixed mental status, ranging all the way from violent and vitriolic opposition down to apathy and deadly inertia.

Most innovators in medicine have also qualified as martyrs. Semelweis is a conspicuous example of this fact. Through his researches into the causes of childbed fever, Semelweis made Lister possible. But the opposition of his medical contemporaries finally drove him into an asylum, where he ended his days. Fifty years later, the profession made the amende honorable to Semelweis by building a beautiful monument to him in Vienna.

Simpson, in introducing chloroform as an anesthetic, also had a difficult task. He had to meet the bitter opposition of the reactionaries, also the antagonism of thousands of hypocrites (of the male sex) who professed to be scandalized by the fact that the pangs of childbirth could be mitigated by the inhalation of the sweet vapor of chloroform.

Simpson, however, shattered the barrier of religious and medical opposition when, with the inestimable aid of chloroform, he delivered Queen Victoria of a young son.

Practically every obstetrician in the civilized world now uses an anesthetic in labor. And unless there is some pathological condition which appears to forbid it, no surgeon would now attempt a major operation unless his patient was first thoroughly anesthetized.

I confidently expect a similar vindication of Hydrotherapy and Bloodless Abdominal Surgery, as practiced by my friend, Dr. R. Lincoln Graham. The results that Dr. Graham secures, and has secured consistently for upwards of thirty years of busy medical practice, are nothing short of astounding.

When one is told that in all these years Dr. Graham has never lost a case of pneumonia or typhoid—two of the most implacable among the captains in the Army of Death—that he has never written a death certificate for any of the thousands of influenza victims he has treated; that he has, by manual manipulation developed to the Nth degree, relieved innumerable cases of chronic appendix trouble and gall stones without the necessity for a major operation; and that by the same system of bloodless abdominal surgery he restores patients suffering from chronic stomach and intestinal troubles which have rendered them almost helpless—when one learns all this, one marvels that the entire profession is not now practicing his methods.

Certain phases of Dr. Graham's method are so simple and easily applied that any intelligent layman

can put them into practice. The results are as nearly specific as can possibly be expected from the use of any medical or therapeutic procedure. These methods Dr. Graham has described in detail in the present volume. That they are practical and efficacious I have ample reason to believe. For I have seen them work in scores of cases, many of which would be and have been considered practically incurable by any other form of treatment of which I have personal knowledge.

Dr. Graham is Physician-in-Chief of the Graham Sanitarium, 123 East 89th Street, New York City. He is a graduate of Long Island Medical College. Shortly after receiving his state medical license, Dr. Graham left for post-graduate study in Europe. He matriculated in the University of Berlin. His originality and success in the treatment of disease attracted such attention that he was offered a professorship in one of the great European medical institutions. He declined this honor in order to collaborate with Professor Adolph Guenther, Professor Frankel and other leading medical scientists of Europe in special investigations.

Returning to America, he began the practice of medicine in Brooklyn. He also served as Professor of Gastro-intestinal Diseases in the Fordham Medical School, conducted a clinic in the New York Hospital, and finally founded his own sanitarium in New York.

He has written many authoritative medical articles and has lectured before many medical societies. Among his original articles is "Yeast Bacteria in the Stomach," which astonished the medical world by the new light it threw on the cause, remedy and prevention of obesity.

I confidently believe that if any considerable number of medical men and laymen will adopt and practice the system which Dr. Graham describes so clearly in this work, that it will be possible to save many lives and bring a wealth of health to thousands now doomed to drag out an existence of semi-invalidism.

The technique is definite. There can be no possible danger in the proper application of the methods. The results will speak, trumpet-tongued, for themselves; and one hundred years from now, the system will be universally extolled.

Meanwhile, the seed is being sown. How it will grow depends upon every individual who reads these pages, and upon the personal interest he may show in the conservation of health and life, as expressed in one of the most revolutionary contributions towards medical advance that has ever come down the tides of time.

Dr. Edwin F. Bowers.

CONTENTS

CHAPTER I

Civilization and the Bath

The status of civilization among any race of people, as regards their physical, mental and cultural development, is measured to a very considerable extent by their use of water. For civilization implies sanitation, and sanitation suggests and stimulates physical cleanliness and intellectual growth. Aqueducts, sewers and a liberal water supply are indispensable adjuncts to community growth and civic well-being. This is proved by the high quality of culture and development achieved by Athens, Rome, Jerusalem, Carthage, Alexandria and other great centers of the ancient world.

To be sure, there are many primitive races (dwelling usually in or near the tropics, it will be noted) who are enthusiastic and indefatigable bathers. Their bathing is not done for sanitary reasons, however, but has been made a racial habit by centuries of a certain environment, including the heat of the climate and the nearness and plentifulness of the water supply. If they had been planted in another quarter of the world, they might not have bathed at all.

On the other hand, scarcity of water furnishes an adequate excuse for infrequency of bathing among

many peoples. No one can reasonably blame an Arab for not bathing in his infrequent oases, instead of carefully saving the water for drinking. In some districts of Russia, where there are but few rivers and lakes, there are villages containing one hundred or more houses, where there is scarcely sufficient water available for drinking purposes. In these benighted spots, baths are a great novelty. In fact, these folk are said to experience only three in the course of their stay on earth—just after they are born, just before they are married and just after they die.

A warm climate and warm water invite to the enthusiastic indulgence in a practice which—if one had to chop through four feet of ice to get the matutinal tub—would be indulged in only by the very heroic or the very foolhardy. Therefore the South Sea Islanders, especially the Hawaiians and the Fijians, are remarkably fond of bathing and are expert swimmers, while some tribes of North American Indians know so little about the external use of water that they usually drown if they happen to tumble out of their canoes into deep water.

In the icy waters of Labrador or Greenland, where the temperature of the water rarely rises above the freezing point—that is, freezing to human beings—swimming is almost as uncommon as snowballing at the delta of the Amazon. Therefore the Eskimo grows up, becomes an old man at forty and dies of senility at fifty without ever enjoying a water bath

in all his career, unless he should at some time happen to be tipped over by a walrus.

WOMEN MORE CIVILIZED THAN MEN

If civilization be measured by frequency and thoroughness of bathing, it must be conceded that women are more civilized than men. For the love of cleanliness seems to be more a part of the normal woman's make-up than it is of man's. This is perhaps more apparent among the families of laborers, miners, quarrymen, teamsters and those engaged in rough, dirty work. Familiarity breeds in these men a certain habit of uncleanliness. Possibly they sub-consciously reason that it is useless to go to so much trouble to remove that which is so easily smeared on again.

Women, on the contrary, are natural sanitationists, whose lives are dedicated to one long struggle with dirt and disorder; which may be a wise provision of Nature for the preservation of the race, the young of which so quickly succumb to the evils and illnesses engendered by uncleanliness.

Generally speaking, however, it may be said that the instinct for cleanliness is inherent in man. When he has the time and the opportunity—and often when he hasn't—he improves both by taking a bath. And this "bath instinct" is most deeply and firmly rooted. Indeed, it goes right down to our biological tap-roots.

For the single-celled organisms which were our earliest ancestors originated and lived in the sea. Even now, in our present highly developed state, nine-tenths of our body cells are aquatic, and can exist only in a saline bath. If they were to be dried, and thereby deprived of their bath of blood and serous fluid, they would probably give up the ghost.

This is one reason why most normal individuals love the sea. It is the response of the myriads of particles of sea-water in our tissues to the restless and ever-changing vibration of the great Mother of All Life, the source of our being, without the cleansing surge of whose tides life on this planet would soon cease to exist.

So we have much reason to love the water and to eulogize the bath. It is a tribute to our good sense and increasing intelligence as a race, that this aggregate love is increasing, and that the building of bath-tubs goes on apace. If we have opportunity to continue it a few thousand years longer, it may do much to carry humankind to heights of civilization as yet undreamed of.

THE RISE AND FALL OF THE BATH

In the halcyon days of the Roman Empire, before it had been drained of its best blood in wars of conquest, and before the slave and the hired mercenary fought the campaigns and battles that paved the way

for its decadence, Rome built the finest and most luxuriously appointed bath houses that this planet has ever seen.

In these wonderful buildings, bathing was carried to the acme of esthetic perfection. It developed into an art—a nation-wide worship of the Clean Skin. To assist and amplify this idolatry, the Romans included in their bathing emporium, amphitheaters, gymnasia and gardens, also libraries, reading and lecture rooms and courts, where all Rome could come and spend all the time it had to spend.

A faint idea of the magnificence of these wonders of the ancient world may be gained from the statement that the baths of the Emperor Caracalla covered a square mile in area—one-quarter of a mile or more on each side. This building contained a great court for exercise, large halls for the various forms of baths, complete libraries at either end, a giant swimming tank and many other useful and ornamental features. In one hall there were marble seats capable of accommodating 1,800 bathers at one time —although this was excelled in the Baths of Diocletian, which provided seating facilities for 3,200 bathers in one room.

The splendor of the architecture and the lavishness and beauty of the decorations are almost inconceivable. Many of the finest surviving examples of classic sculpture were among the ornaments of these baths—the Laocoon, the Capitoline Venus, the Far-

nese Bull, the Hercules now in Naples and a number of the best specimens of the work of Phidias and Praxiteles. Inside and outside, the buildings were embellished with mosaics, paintings, stucco work and all the most cunning forms of decoration known to those lavish times. The giantism of the Romans, which led them to level a mountain to build a forum, was nowhere more evident than in these extravagant baths. The ruins, for instance, of a single room of the Baths of Diocletian, 300 feet by 90, were, centuries later, converted by Michael Angelo into a church, now one of the most beautiful and imposing structures in Rome.

The ladies of the period were provided with bath houses quite as gorgeously appointed as, although constructed on a less stupendous scale than, those patronized by their genial lords. By the second century A.D. men and women were bathing together in the great public thermæ. These baths cost the patron on an average less than a cent of our money, and many of them, established by emperors and rulers as a sop to make the populace forget their heinous oppression and abuse, were entirely free. Wherever Romans conquered and settled, they built public baths, the ruins of which remain to this day, sources of wonder and admiration.

Some of the empresses and fabulously wealthy courtesans were given to the most extravagant bathing habits. The Empress Poppæa treated herself to

a daily bath in asses' milk—a very inferior, unsanitary and uncleansing medium. In the houses of the rich, all sorts of cosmetic baths were indulged in by women and also by the Roman Beau Brummells, in the effort to achieve white, soft, baby-like skin.

After the fall of Rome followed "a thousand years without a bath," as Michelet characterized the Dark Ages—a period when bathing became almost a lost art; until the returning Crusaders, in the Twelfth and Thirteenth Centuries, brought back the hot baths of the Orient and spread them all over Europe, where they have been more or less in evidence ever since—though not always enjoying the best of reputations. Indeed, in England they were known as "hot houses," a name which at length came to have the same meaning as "brothel." Which characterization was undoubtedly the result of the mixed bathing practiced throughout Europe during the Middle Ages—especially on the Continent. To this day, the bathing resorts of the world, from Hot Springs to Wiesbaden, from Marienbad to Saratoga, are lax morally; doubtless because those warm baths and massages which tend to relax and enervate, which foster luxurious ease and the development of Sybaritic habits, to some extent unbrace the moral armor and favor ethical laxity, while cool or cold baths, or short, hot, stimulating baths fortify the moral as well as the physical nature.

Yet the instinct and practice of cleanliness is in-

herently in the direction of moral improvement. Only its abuse—as with the abuse of eating and other salutary functions—is immoral. Cleanliness is indeed akin to godliness.

CHAPTER II

Bathing for Beauty

There is no side-stepping the proposition that to be beautiful we must first be healthy. So we must score one for the cold bath in respect to the fact that it will make us healthy—provided that it doesn't kill or cripple us first.

It requires that the water be heated to a point where it will dissolve off the accumulated oil and the "matter out of place" that adheres to the oil film before real cleanliness is attained.

And fear not to destroy the oil-secreting power of the skin by occasionally freeing it from this film. For the internal force that pushes oil, sebaceous secretion and effete material up through those glands will continue to push. Yet, of course, no self-respecting skin could stand a perpetual soaking in hot water without showing signs of losing too much of its lubricant and becoming roughened, chapped and fissured.

In contradistinction to the tonic shock of the cold tub or shower, warm and hot baths quiet and soothe. They relax the tension of muscles, nerves and blood vessels. They help the skin to eliminate the accumulated fatigue poisons that depress vitality. In short,

they tend to make us healthier—and, as a consequence, handsomer.

However, hot baths, especially if too long-continued, are debilitating. And anything that filches strength robs beauty. Yet, if one does not remain in the hot bath longer than two minutes at a time, he gets almost as much stimulation, followed by quite as good a reaction, as he would from a cold bath.

RINSE THE SOAP OFF THOROUGHLY

The cleansing bath should be from 90 to 95 degrees Fahrenheit. This should be followed by a colder splash or a shower which drives the blood from the surface and closes the pores. Great care should be observed to insure the thorough rinsing off of the soap; for even the purest and blandest of soap is irritating if permitted to remain long in contact with a delicate skin, and merely wiping off a lather is not getting rid of all the soap—not by a considerable margin of failure.

The towel should invariably be tempered to the skin. If one is blessed with a tough integument, a coarse crash towel may be used briskly. But if she or he happens to have a tender skin the "crashness" of the towel will have to be modified.

Many believe that the tepid bath, finally graduated to coolness by the simple process of letting in cold water as the warm water runs out, is the best bath.

BEST TEMPERATURE FOR THE BEAUTY BATH

Probably the best all-around average temperature for the bath is from 68 to 72 degrees, although this varies with the individual reaction. It is best, to insure accuracy, that the temperature be taken with a thermometer, as the old nurse's principle of determining the eternal fitness of things is eminently unsatisfactory. Her practice, you remember, was to put the baby in the bath, and if he turned blue she knew the water was too cold. While if he turned red, she was equally certain that it was too hot.

Delicate children and women might react most unfavorably to a bath the temperature of which is gauged in this rule-of-thumb manner.

Once a day is about the correct amount of indulgence for the average bather. In the summer an extra cold tub might be taken with benefit. But if the skin feels dry, scaly, or itchy after the baths, it might be well to cut down their frequency—especially during cold weather and the season of "winter itch."

Sea bathing is one of the greatest and most effective of all healthifiers and beautifiers. Partly from the salt contained in the water, and partly from the "slap" of the surf, it is splendidly stimulating to the skin nerves, and through them to the entire system, particularly if the skin can tolerate dispensing with a fresh water shower after the salt bath.

The same objections, however, apply to its abuse by emaciated, weak, or anemic individuals as applies to the morning cold tub, and for identically the same reasons—only more so.

Those famous ladies of history who bathed in asses' milk, wine, strawberry or elderflower juice, chickweed, and various other delectable products, accomplished a three-fold purpose by their bizarre baths. They amused themselves, they got indifferently clean, and they gave their imaginations a copious amount of gentle exercise.

Had they, however, depended upon cistern or rainwater—which is the purest and softest water procurable anywhere—they would have been much more clean—even though not quite so picturesque or well advertised.

THE BEST WAY TO SOFTEN HARD WATER

"Hard water"—which is water carrying an excess of lime or other minerals—is sometimes most irritating, especially to delicate skins. A wineglassful of common vinegar will neutralize the excessive alkalinity and thereby "soften" the water, so that it becomes a better dirt solvent; which treatment also overcomes the tendency towards irritation.

Exercise before and after bathing aids in the good effects of the bath, for it opens the pores and facilitates the expulsion of waste products, and after the

bath favors the nutrition of the skin by increasing the reaction of blood to the surface.

While there are some skin diseases that are aggravated by bathing, most eruptions—as pimples, postules, scales, and crusts—are greatly benefited by hot or warm baths—particularly if some antiseptic, as chinosol, lysol, or some of the mercury preparations be added.

Sometimes a half pound of starch, dissolved in the bath water, has an excellent effect upon itching and eruptions, and every one who has ever had them knows that hives are greatly relieved by immersion in salt water.

TO OVERCOME EXCESSIVE PERSPIRATION

For those who perspire too freely, a half a cupful of ammonia and a little formaldehyde is most helpful, and frequently curative.

A wineglassful of toilet ammonia also frequently has an excellent cleansing and whitening effect, and is usually very well borne by even the most delicate skin. Or a little tincture of benzoin may be equally acceptable.

Many famous beauties, instead of using soap, use almond meal poured into the wet hands, thereby forming a paste, which is rubbed on the hands and face as a soap substitute. It seems to agree with them, and certainly it is bland and non-irritating, being free from alkali.

Oatmeal or bran—either dissolved in the water, or sewn in a bag, and soaked in the water—often have a soothing and softening effect upon roughened or stained skins.

Upon the choice of a soap depends much of the success of bathing for beauty. If a soap has an excess of alkali—and most of them do—this alkali promptly unites with the delicate fatty substances secreted for the protection of the skin, and removes it, leaving the skin surface dry and harsh. Cracks then form in the skin, and dirt works into them, frequently requiring the use of even stronger soap to eradicate. This still further deepens the cracks, and so it goes, from bad to worse.

THE BEST TOILET SOAP

Don't economize on toilet soap. Adopt the principle that even the best is not quite good enough, although it will have to do until a better is perfected.

If the skin is unduly sensitive to soap, it might be well to shave a little of the least irritating toilet soap one can secure, and let it dissolve in the bath water ten or fifteen minutes before the ablution. Thus any irritant which the soap might contain would be so diluted and diffused that only a very small amount of it at a time could touch the skin.

Stiff scrubbing brushes, coarse sponges, and other implements for separating dirt and skin by the Scotch

system of navigation—"main strength and awkwardness"—should be used only for manicuring the kitchen floor, or polishing off the picture frames. And even then they should not be used too recklessly. To employ them on the delicate human skin is sure evidence that one hates oneself.

To use the dry heat of the Turkish bath or the moist heat of the Russian bath for increasing the total stock of beauty is love's labor lost. Indeed, unless they cause free and profuse perspiration, these baths should be avoided—especially if followed by a headache or any feeling of discomfort. They are, at best, but a lazy way of taking physical exercise, and we would be just as well off if we'd let the Russians and the Turks have our share of them—as well as their own.

Nothing in the Pandora box of Beauty is more important than the bath, for it is a goodly segment of a beneficent circle. Baths favor health, health creates beauty, beauty invites happiness, and happiness in turn develops more beauty. If you haven't already got the habit, get it.

CHAPTER III

The Beginnings of Hydrotherapy

If the medical profession is ever called upon to answer in a High Court for its Sins of Omission, one of the first questions it will have to meet will be, "Why have you, for almost twenty centuries, neglected to use water as a therapeutic agent?"

It seems almost incredible that the rich experience of the ancients concerning the health-giving properties of the bath should, until the latter half of the Nineteenth Century, have been so generally ignored. The Dark Ages, so called because of the mentally benighted condition of the race at that time, apparently affected the medical profession more virulently than any other. Doctors practiced astrology and pseudo-magic rather than medicine, and used very little water themselves, either internally or externally. In all these piled-up centuries, millions of human beings must have been permitted to die, whose lives could have been prolonged by a mere water pack or a properly administered sponge bath.

To-day we remember what the old Greeks told us, and what common sense should never have permitted us to forget—that "cold water on the outside of a man is good for hot blood on the inside of the man."

Yet the recognition of this and other vital facts is of very ancient origin. For the early use of water in meeting physical abnormalities and possible emergencies dates back to the early Chinese era. Two thousand years before the time of Moses, the Chinese performed circumcisions at running streams or at the sea-coast, recognizing the hæmostatic (hemorrhage-stopping) as well as the antiphlogistic (pain-reducing) effects of water. Many of the laws of the Talmud concerning the ritualistic use of water have their origin in knowledge gained from the Chinese. In the Bible we read frequently in the early Jewish periods of the use of water among the Jewish tribes for its beneficial effects.

As a matter of fact, the employment of water in the cure of disease is as old as thinking man. In the Rig Veda, written about 1500 B.C., we are told that "water cures the fever's glow." Hippocrates extolled it highly. The ancients even indulged in shower baths, the invention of which is credited by some to one Asclepiades, who was born 126 years before Christ. Nearly all the ancient medical authorities wrote appreciatively of the use of water in medicine, and employed it extensively, although more or less empirically.

The first attempts at scientific hydrotherapy, however, were made by Johann Sigismund Hahn in Silesia, at the beginning of the Eighteenth Century. Water as a curative agent first gained prominent

recognition in the medical world in 1702, when Sir John Floyer, a physician of Lichfield, England, wrote a treatise, entitled "The History of Cold Bathing to the Ancient and Modern." Subsequently, an English medical authority, Dr. Currie, of Liverpool, wrote in 1797 a treatise called, "Medical Reports on the Effects of Water, both Warm and Cold, as a Remedy in Fevers and Other Diseases." These works were translated into German, and in 1804 Professor Gertel, of Ansbach, republished them and quickened the popular movement toward the recognition of water as a therapeutic agent by his unqualified commendation of drinking water as a remedy for all diseases.

Vincenz Priessnitz, however, a farmer of Graefenberg, in Austrian Silesia, is looked upon as the real father of modern Hydrotherapy. The fame of Priessnitz drew students of all nationalities to Graefenberg, as well as patients suffering from ailments that resisted the usual forms of medical treatment, although the efforts of the German priest, Sebastian Kneipp (1822-1897), probably went further to popularize the "water cure," as it was then known, than all other measures combined.

The very success in Germany, France and America of the methods taught by Priessnitz and Kneipp resulted in the bitter condemnation of hydrotherapy by the physicians of the older school of medicine. But it is noticeable that even the most skeptical of

allopaths gradually adopted modified forms of Priessnitz's methods. The Germans, Phreninger and Runge, Brand of Berlin, Raljen and Surgensen of Kiel and Liebermeister of Basel, between 1860 and 1870 employed the cooling bath in abdominal typhus, with results which were striking enough, even after every deduction because of defective classification had been made, and led to its introduction in England by Dr. Wilson Fox, whose able monograph on the subject commanded general acceptance.

In the Franco-German War the cooling bath was largely employed in conjunction with quinine; and it or the cold pack is now recognized as invaluable in the treatment of all conditions complicated with high temperature. Of course, cold baths do not cure fever. The cure is brought about by the development within the system of anti-bodies and toxins that kill the germs which cause the fever, and also by the increase in the number and in the appetite of the leucocytes or white corpuscles (the little policemen of the blood) which devour the noxious germs. But the baths do relieve the febrile symptoms and help to bring about normal physiological functioning.

The wet sheet pack has of late been much used in fevers of all kinds, both in private and hospital practice, while the Turkish bath, introduced about sixty years ago by David Urquhart on his return from the East, has become a public institution, and with the morning tub and general practice of water drinking,

are noteworthy contributions of hydropathy to public health.

Late in the '80's Winternitz of Vienna developed the theory of treating diseases by the use of the nerve reactions from water. Winternitz claimed that the nerve effects were both direct and reflex. The extent of their influence depended upon the temperature of the water and upon the force with which it was applied. Friction by rubbing and also massage increased the responses to the stimulation. The shower, spray, alternating hot and cold baths, with manipulations and massage, held precedence over the cold pack and the prolonged bath. Winternitz practically abandoned the internal use of water, and depended upon the stimulation produced by the external use to obtain his results.

Guenther, a student of Winternitz, established his "Bad-Anstaldt" in Berlin in 1890. He followed most of Winternitz's theories, but confined himself largely to the correction of kidney lesions.

I may claim the honor of having been the first to introduce the internal use of water by the "osmotic" treatment. This was done during my association with Guenther in Berlin in the late '90's.

Baruch, also a student of Winternitz, first introduced hydrotherapy in America. It was coldly received, however, not being understood by American physicians. But as time went on, it was occasionally practiced by them, and in later years it was frequently

practiced by Osler, Spitzga, Oppenheimer and others among the most eminent internists.

I have, however, so simplified the use of water in disease that it may be used in any home and without elaborate apparatus. By my technique, hydropathy is, of all medical methods, the one most certain to yield definite, helpful results, not only for the minor ailments but for practically every grave condition to which human beings are liable. It needs only to be put to the test to substantiate this fact and to establish its indispensability to every family and every home in the land.

CHAPTER IV

How the Blood and Nerves React to Water

The man who wrote, "Let me write the songs of a country and I care not who makes their laws," might have shown even better judgment if he had said, "Let me prescribe the number and character of the people's baths, and perhaps we won't need so many laws." Perchance the improved appearance of the people's complexions might tend to keep them more moral, as it undoubtedly would tend to keep them more healthy. Cleanliness, health, beauty and godliness are in fact more closely related than most people have ever realized.

Through the great "third lung" which we call the skin, more than two pounds of beauty- and health-destroying waste product are thrown off daily. This material, the débris or garbage of our organism, if partly retained, poisons body, mind and soul; if entirely retained, it would kill as surely and quite as quickly as arsenic or many other poisons. Witness the famous Russian boys who, as impersonators of angels, were covered with a thick coating of gold paint, and with their pores thus stopped, became real angels in about two hours.

It must be admitted that, theoretically, health

seems to be possible, even with abstinence from baths —provided we exercise and sweat enough. For with three million sweat glands working day and night, bringing impurities to the surface, and with the flattened surface cells of the skin falling in constant showers, there is more or less automatic cleansing of the skin. Ordinarily, we cannot clog these little sewers any more readily than we could stop a bubbling spring from overflowing.

This has misled Sir Almoth Wright, Dr. Pease and other enthusiasts into vociferously insisting that bathing is merely a civilized superfluity—an esthetic affectation—like combing one's hair or manicuring one's finger nails; and that it robs the skin of its natural oily protection, favors its cracking, and permits the entrance of belligerent microbes into the system. Also that if we bathe according to Nature's method —which they say means merely perspiring briskly and then scraping off the perspiration with a paddle as they do with race horses—we would have all the bathing that should be expected or required. Or if we wanted to do an extra fine job, we could resort to a dry sand rub, after the manner of an Arab.

But these substitutes will never appeal very strongly to any one who has had practical experience with a tub. For the dry scrape or sand bath doesn't make us feel so well or look so well; and we are less likely to offend our own or the other fellow's olfactory nerves if we indulge unstintingly in water bath-

ing than if we depended upon a burlap sweating-jacket or a sand pile for our cleansing. Furthermore, those of us who live sedentary lives undoubtedly need the bath as an aid to the sweat glands.

THE AIM OF HYDROPATHY—COÖPERATION

But there is another reason which these champions of abrasive bathing have overlooked. The fifteen to seventeen square feet of skin which covers us is endowed with intricate and marvelous circulatory systems. Through their millions of nerve endings, these systems are intimately connected with the central nervous system. By means of these complicated and sensitive systems, either direct or reflex relations are made with every organ, gland, muscle or blood vessel in the body.

As a rule, every organ is in relation with the skin immediately over it, although many organs are also in reflex action with quite remote portions of the skin. In other words, the shock or tonic, blood-vessel-dilating or blood-vessel-constricting, hemorrhage-checking, kidney-stimulating, pain-deadening or sleep-producing action of water—used externally—is manifested because of the influence and intimate connection of the skin with the organs, nerves or blood vessels having to do with these particular functions.

And to study the influence on these, a very accurate knowledge of physiology is required. As a matter

of fact, hydrotherapy, as it is called (the science of curing disease by the use of water), is a well-known branch of medicine, with a voluminous literature, an influential following and a marvelous record of achievement in those countries in which it has been developed to a fine art.

The theoretical basis upon which hydrotherapy is founded is wide and fundamental enough to include within its scope all diseases. Each individual cell of the mass combining to constitute the human body is, in its growth and function, dependent on and regulated by the nervous and vascular (blood) systems, which systems themselves are aggregations of cells.

Every derangement of these cells originates in or is attended by a derangement of their nervous and vascular supply. This supply being in quite diverse ways influenced by heat and cold, all morbid conditions of the economy may likewise be materially influenced by the regulated employment of heat and cold, which modifications are therefore entitled to rank as powerful factors in therapeutics.

Hydropathy insists upon the necessity of regarding disease first in relation to its causes. It next requires that whatever assistance may be given to the *vis medicatrix naturae* (the tendency of Nature to restore the normal) should in the first place be similar in kind (i.e., should be natural or physiological) rather than alien to it, and drawn from sources remote and strange.

Hydropathy formerly selected the skin as more accessible than the mucous membrane of the alimentary tract for treatment. The skin can be used for counter-irritation with safety. It is a reservoir of almost unlimited capacity, into which can be diverted the excess of blood from the brain and other parts. For purposes of excretion, the skin is hardly inferior to the bowels themselves, and hydropathic treatment does not decrease its efficiency, but leaves it more efficient than before. By means of wet sheet pack, cooling compresses, hot packs, spongings and allied measures, the reduction of fever is attained with comparative ease, certainty and simplicity, and *with entire freedom from objectionable effects.*

ACTION AND REACTION

In the nervous system there are usually two opposite effects from impressions. This is best illustrated by the impressions from heat and cold. We pale momentarily before we blush from embarrassment. Our cheeks blanch at the impact of the cold wind in Nature's effort to save the blood from being chilled. This is followed, however, by a reaction in which the blood is driven to the surface in excess, and our cheeks become rosy.

Two effects are produced upon the skin by water, and through the skin upon the nerves, muscles and blood vessels deeper inside the body. If we apply

cold, heat (not mere warmth) or percussion (such as slapping) to the skin, a contraction of its blood vessels occurs, and through it, a similar contraction takes place in the larger vessels farther inside the body. By the contraction of the capillaries of the skin, the blood is momentarily driven away; the first effect is to lessen the activity of that particular part of the body touched by the water or percussion. But in a person whose vitality is reasonably good, the circulatory system immediately rallies to overcome the momentary chill and depletion by pumping blood back towards the skin again with increased power. Thus the secondary effect is that the parts not only return to normal activity, but to even greater than normal, producing a feeling of exhilaration.

Here, by the use of cold water, we have the peculiar effect that stimulation is produced by an agent which primarily depresses the skin's activity. Therefore, in the majority of cases, it is not so much the primary, immediate effect of an application—such as cold water—that is important, as it is the after effect, or reaction.

Both the cold bath and the hot bath will reduce fever. The hot bath brings the blood to the surface primarily and instantly, while the cold bath brings it by reflex action a second or two later. However, with the hot bath, there is danger of an unhappy reaction, manifesting itself in chilling and internal congestion.

As a rule, we seek to obtain the reaction in acute conditions, and direct action in chronic ailments. In the former cases, the circulation is too active, while in the latter it is too sluggish. Therefore, by direct action, the circulation will be improved. Old sprains, lumbago, sciatica and chronic joint conditions call invariably for the warm bath.

There are several axioms with relation to action and reaction. For example, "The reaction is always in direct proportion to the variance from the normal temperature." Thus it is that in very high fever, it is advisable to saturate the wet pack with ice water. "The reaction is in direct proportion to the area exposed." Therefore, in grave febrile conditions, such as typhus, the entire body should be wrapped in the pack. In simple bronchitis, with moderate rise in temperature, the local pack is sufficient. "The duration of the reaction is in direct proportion to the duration of the exposure"—with certain modifications.

THE VASO-MOTOR SYSTEM AND ITS REACTION

The entire vascular (blood) system is largely under the control of what is called the vaso-motor nerve system. That is, the blood vessels are stimulated to contract by the nerve endings within the muscles of the coats of the arteries and veins and larger capillaries. This stimulation is what is called direct nerve stimulation, and from the contraction of

these muscles, the vessels are lessened in size, and blood is driven out of the parts. However, these nerve endings within the muscular coats are connected with and controlled by the nerves of the sympathetic and the cerebro-spinal systems of nerves. Therefore, when the stimulation is carried to the nerve-centers of both of these systems, a restraining impulse is sent to the nerves within the muscular coats. So, following a contraction, we have relaxation and consequent filling and distension of the blood vessels in the parts affected by water stimulation.

Although the sudden application of cold water to the body causes a shock which speeds up the heart's action for a few moments, yet if the cold water is applied for a long period, the heart's action is slowed, the circulation becomes poor, and the skin is pallid or blue with cold. If ice or a cold compress is applied over the heart for a few hours, it slows down the action of the heart, and consequently, the speed of the circulation; but if it is applied only for a few moments, it is an excellent tonic and stimulant for the heart.

The application of cold diminishes nervous and mental activity to a remarkable degree. Long continued cold applied to a main nerve trunk will impede and presently stop its functioning altogether. This is why, when suffering from intense cold, parts of the body presently cease to give pain, as if they were becoming warm again; the truth of the matter being

that the nerves are ceasing to function, and the person is on the point of freezing.

Such knowledge as this points to many valuable uses of cold water. For example, the application of a cold compress to the base of the brain will reduce mental activity and prepare one for a restful sleep. A similar result may be obtained by a cool, wet pack placed upon the abdomen. This withdraws blood from the brain and fills the lymph vessels, thus promoting excellent conditions for rest.

Action and reaction are also noticed in the breathing apparatus. A quick douche or plunge into cold water increases respiration very decidedly for a time, but if the body remains immersed in cold water, the breathing presently becomes much slower. Likewise, cold water on the skin at first decreases or suspends perspiration, but it increases again immediately afterwards, often to a greater pitch than before.

Our grandparents discovered that holding a cold key to the upper spine, just at the base of the neck, would stop bleeding at the nose. Most of them thought that the fact of its being a key had something to do with the cure; but the simple truth is that a piece of ice or a cold, wet cloth applied to the same spot would have had the same effect in allaying congestion of the nasal mucous membrane. It is one of the marvels of Nature to note how hot or cold applications to certain parts of the skin affect the internal organs.

As a rule, prolonged exposure to cold is not well tolerated by the human anatomy, whereas Nature meets exposure to heat with much greater toleration. This does not mean that the cold wet pack should not be used for a long time, for it quickly becomes warmer from the heat of the skin. It does mean, however, that cold wet packs must not be changed too frequently. I rarely change them more than once every hour, even in pneumonia. Usually once every two hours will meet all indications.

Again, the reflex action may be remote. Wet feet will excite a congestive condition of the lungs. They may also produce menstrual stoppage. The sudden immersion in cold water, as in the sea-bath, will excite the desire to urinate. Chilling of the pelvic organs has caused intense headache, and it is not at all uncommon for severe headache or neuralgia to attack delicate or sensitive persons as a result of a prolonged sea-bath. The "globus hystericus" (choking sensation) produced by putting the feet into the cold sea-water is another example of remote reflex action.

CHAPTER V

Water Fads

My mention of the Turkish bath a little while ago must not by any means be interpreted as a sweeping endorsement of the indiscriminate use of either it or the Russian bath. It is of course only fair to say that a Turkish bath will freshen up a fellow who is pickled in booze, and that it will undoubtedly aid in breaking up a beginning cold. Yet in the very nature of things, there are probably quite as many colds caught in Turkish baths as are left there. The hot, moist air, the abominable ventilation and the absence of sunlight render the bath an admirable and unexcelled culture laboratory for germs—which we know cause by far the great majority of our colds. Indeed, there is hardly a more effective known means for catching cold than to spend some time—especially if debilitated and weakened in resisting power—in the company of one or more men who came to the bath to get rid of theirs. For the germs they bring in may leave almost any one who happens to be in their company, under the debilitating, enervating and unsanitary conditions which infest these places.

One of the most frequent consequences of the Turkish and Russian baths is their depressive effect

upon the heart. By arbitrarily increasing the pulse rate and the blood tension, they throw an extra strain upon the heart muscle, and if there is any irregularity or abnormality in this organ, this excessive work may cause it permanent damage. One who has any tendency toward heart disease, or who suffers from any form of valvular trouble or heart weaknesses would do well to avoid Turkish or Russian baths as he would a cross-country run.

The Russian bath envelops the bather in an atmosphere of steam, which renders it, if there is any difference, more oppressive and enervating than its Turkish cousin, as any one who has breathed steam very long will admit. In fact, the majority of medical men look upon the Turkish and Russian baths as a sort of mechanical stimulus to physiological functioning—somewhat like a dose of jalap—and to be used only as one would employ a drastic cathartic. As a temporary relief for skin and sweat gland constipation, they are splendid; as a weekly or fortnightly habit, they are abominable.

THE MINERAL SPRING FAD

Apart from the elusive and seductive influence of the nymphs, spirits, kelpies and nixies that used to haunt all springs, and may do it yet—with the exception of the more foul-smelling ones, of course—the chief charm of mineral springs lies in their beauty

and bubble, and in the "All's-right-with-the-world" suggestion of their ebullience and saucy sparkle. But when all is said and done, their principal therapeutic value lies in their wetness and in the fine, fresh air found in their immediate vicinity. They rarely possess any quality—save perhaps an infinitesimal one, due to some slight emanations of radium, or as a consequence of their being thoroughly impregnated with iron, heavily charged with moonshine or chock-full of whatever happens to be the most popular medical fad at the time—which gives them any therapeutic value.

But it is only simple fact to state that their marvelous uric acid solvent powers lie in the number of glasses of water drunk daily at the "bads;" their anti-syphilitic effects revolve around the huge doses of mercury taken by stomach, fumigation and inunction during the "treatment;" their appetizing qualities are fostered by the vacation feeling—the freedom from business and household perplexities; and their fine influences upon digestive processes arise from the quantity and character of the exercise taken between baths and meals.

THE INCREASING BATH HABIT

However, the bath habit is growing. The famous springs of this country are patronized by thousands who (sometimes) lead a tolerably correct physical

life for three weeks of the year in order that they may over-indulge themselves in food, fatigue and folly during the other forty-nine.

For chronic invalids, suffering from surfeit and tortured by trifles, a three-weeks' rest with no more brain-wearing tasks on hand than to remember their hours for the bath, the liver-stirring massage, the oft-repeated goblet or the golf game, the "health resort" is a veritable life-saver. This is predicated upon the supposition that you visit a resort which isn't too lively. At some of them, you may, if you will, acquire more fatigue than you do at home. But when you add to the above health-giving measures a change of scene and air, quiet, restful surroundings, the sluicing effects of innumerable glasses of water—beginning with a goblet or two at 6:30 in the morning—and the skin activity which follows the daily stews, steams, soaks and rubs, why shouldn't the springs benefit many invalids whose only trouble is that they are stuffed, satiated and tired?

After three weeks of this soaking and sluicing, actual pounds of impurities will have been removed from the body. About eighty per cent of these "chronics" who must be frequently boiled out at Hot Springs or French Lick would get well under any system of treatment which included considerable restrictions in diet, routine work and frivolity and a large increase in rest, fresh air, outdoor exercise, water and sleep. Don't give mineral bath resorts the

credit for what could be done just as well at home or in the country.

WE CAN'T SOAK MINERALS INTO OUR TISSUES

Here's another fact. We may soak and stew ourselves until we could almost be served up as a boiled dinner, but little or none of the minerals or salts contained in the bath water will enter the pores of the skin and be taken up by the blood. Notwithstanding the influence that acids, alkalis, sulphur, iron and "laxative" or "tonic" salts might have on the *outside* of the skin, their effect on the *inside* of the skin is no more potent than is moonshine on the growth of cucumbers. We can no more get a therapeutic amount of iron or magnesia into our systems through bath water than we can absorb wisdom through our skins. I am hereby combating balneotherapy, the pseudo-science which clutters up some of our medical libraries with solemn treatises upon the chemical and therapeutic properties of mineral and medicinal waters. The *real* virtue of water lies in its wetness; in other words, in its solvent power.

Water dissolves and washes out impurities, it liquifies dried particles of effete matter and flushes them through the body sewers, and it enters into the blood and tissues and effects a combination with substances that should have been in solution long ago.

So water on the outside doesn't put salt in the inside of a man.

But "How about the effects of mineral spring water when it is drunk?" asks the mineral spring enthusiast.

Outside of the laxative waters—many of which are made chiefly by adding phosphate of soda, magnesia or other salts to plain H_2O drawn from the hydrant—ordinary tap water contains all and sometimes more of chemicals and minerals than many of the most highly lauded spring waters. The impressive-looking formula printed on the mineral spring prospectus is merely a duplicate of what would be printed if we analyzed the water from the kitchen sink or the back yard well. The only difference is that some mineral spring waters contain a third or even a half more minerals than the tap water, with perhaps a pinch of bitter-tasting sulphates or salty iodides or bromides for good measure. In these infinitesimal proportions their therapeutic powers are less than half of nothing.

THE MINERAL CONTENT OF SPRING WATERS

Some springs, however, contain less of these life-giving and health-increasing ingredients than does tap water. For instance, a certain spring—or, as it might be more properly called, a gold mine—in

Maine contains five grains of earthy salts to the gallon—that is, one part in 10,000. New York City's Croton water contains also five grains of the same life-saving salts, so highly extolled in this expensive Maine water; while the Schuylkill River contains four, and most city reservoirs from twelve to thirty grains to the gallon. So one must have considerable high-tension imagination in order to derive any benefit from drinking most mineral waters.

And the bathing water is no more efficacious, even from the standpoint of analysis, than are the drinking waters. For instance, Hot Springs, Arkansas, known wherever the eagle waves its wings, carries exactly eight and a half grains of mineral matter to the gallon—about one-half as much as flows from most bathroom faucets of the world.

Nor can the marvelous potency of the Hot Springs salts be credited with Hot Springs effectiveness. For four grains or more of its "mineral" is lime (wall plaster), another quarter is silica (which is balmy sand). Indeed, the only medicine in the mixture consists in a grain of potassium and sodium phosphate. This is exactly one sixtieth of a grain of laxative to a gallon.

But when these spring waters or any other waters are hot, and when the patient—suffering from rheumatism, lumbago, sciatica or other painful affliction—is soaked and kneaded long enough, the results are almost uniformly good. This would also be the case

if he took the same number of baths, at the same temperature, and had a robust masseur to give him the same vigorous pummeling at home, in his own bathroom.

THE MIRACLE OF MUD

But even though mineral springs and baths may be a delusion, if one believes that surely there must be a tremendous potency in mud, these fountains of life may readily be duplicated at home. Just dig up a couple of bushels of loam and make a nice, rich tubful of hot mud, and enjoy your mud bath to the limit. But it won't do any more good than a protracted hot water bath will do. Mud merely holds the heat a little better than water—that's all. And if you should happen to get hold of mud that has a few disease germs in it, your last state might be worse than your first.

The "medicated muds" of commerce owe their alleged therapeutic influence to the glycerine, antiseptics and anodynes they contain, and their mud isn't any different from nor any better than any other mud. If some one tells you of the virtues of a bath fizzing and sparkling with carbonic acid gas bubbles, this also can be arranged at home. Take a little baking soda and vinegar and generate bubbles to suit your own idea of what a sparkling bath should be like. But don't imagine that the sparkling bath will cure anything—except imaginary conditions.

As a matter of fact, the whole question of "spas," "bads," and mineral springs resolves itself into imagination, plus the beneficent and health-giving properties of plenty of water, applied internally and externally, also fresh air, exercise, rest, limited diet and natural law in the physical world.

CHAPTER VI

The Danger of Drugs

The thing that is capable of good is often equally capable of doing harm. To what extent and under what circumstances a drug is capable of doing good or harm are questions that must ever be borne in mind by the drug user or by the physician prescribing drugs. When we add up the benefits and compare them with the ill-effects, the latter will usually outweigh the former.

Why does a physician so frequently combine his remedies in the form of a prescription? In a vast number of cases it is done to offset the undesired effect of one drug by the modifying effect of the other drugs in the mixture. Why do physicians keep records? Simply to help them note the effect of their remedies, and to avoid, if possible, undesired results from the use of drugs or the scalpel.

Why is it so very important to keep the dosage of drugs down to minimum? Drugs do not affect everybody in the same way. For example, some people will have a severe itching rash from minute doses of quinine. Others are salivated by a grain of calomel. Some die from moderate inhalations of ether or chloroform. Some die from hemorrhage of the

operation. Some collapse from the depressing effects of coal-tar products.

Danger! — danger! — danger! — on every hand. From what? From the very agents that are used to escape from danger. Is this danger ever absent? Practically never. A moderate dose of castor oil has been known to bring on a marked diarrhea, with cramps and resulting colitis. Such household remedies as baking soda have excited an acute nephritis (inflammation of the kidneys). Soda bicarbonate taken to relieve the distress of excessive acidity of the stomach only ultimately increases the flow of hydrochloric acid in this organ. It is well known that most purgatives result in increased constipation. Stimulants react as depressants. Depressants react as stimulants. Narcotics increase the susceptibility to the very pain they are given to deaden.

The very medicine that checks the disease or modifies its severity, retards the processes of convalescence. Tonics, while they increase the functional activity, are in reality like whipping a tired horse; that is, they compel a weakened organism to do increased work, which ultimately will further weaken the structure of this organ.

Specific remedies not only destroy the infection, but produce depleting action of the structural organism. Mercury will destroy the spirochete of syphilis, but it will inflame the kidneys and the salivary glands. Antipyrine will check the progress and pain of joint

rheumatism, but it will break down the oxygen of the blood, and reflexly prove very depressant to the vital powers.

Why is it necessary for the physician to observe the condition of the patient? To note the progress of the disease? No. Rather to note the effects and modify the action of the remedies he has prescribed. The same remedy will not act on the same patient in the same way at different stages of the disease.

WHY THEY MUST BE FRESH

"Fresh Drugs Used Here." This sign is frequently seen in the apothecaries' shops. Why? Do drugs vary in quality as in the degree of their freshness? Of course they do. Every text-book on therapeutics says emphatically that certain drugs must be fresh, or freshly made. If the infusion of digitalis, for example, is old enough to break down certain of its toxic resins, it will produce violent nausea and vomiting.

Many a victim of a sprained joint has been tortured by the painting of the parts with an old tincture of iodine, while a freshly made tincture would have caused little discomfort. Tinctures and fluid extracts are largely composed of alcohol, which readily evaporates, thus concentrating the amount and strength of the drug in the decoction and increasing its activity and power. Even the druggists are alert

to the dangers of the drugs they dispense, as the slightest carelessness on their part may result in the gravest danger to the person taking the medicines they compound.

Rheumatisms that have been treated by salicylates, the standard remedy for this disease, quite frequently are complicated by grave disturbances in the functions of the stomach, from the effect of the drugs on this organ. Coal-tar products usually produce a depleted hæmoglobin of the blood. Quinine tends to bring about extreme nervousness or blood tension. Morphia causes mental depression. Ammonia salts will deplete the excretion of urea, and produce obesity and anæmia. Practically every drug has its objectionable and dangerous features.

HOW NATURE ACCOMMODATES HERSELF TO POISONS

Nature always tends to accommodate herself to constant conditions. It is the exceptional that upsets her equilibrium. The young lad will be deathly sick from his first pipe of tobacco, but under constant use of the weed will develop into a human smokestack, when he may suffer little discomfort.

The new-born infant not infrequently suffers from coryza, or cold in the head, from its first bath, but in a short while will tolerate prolonged bathing with no ill effects. Thus from our early infancy we become accustomed to water, internally and externally, so

that the reactions from water become practically imperceptible.

Apart from the fact that we naturally become very tolerant to water in its various uses, there is the additional fact that water is a normal substance found in all the tissues and fluids of the body. Consequently, its functions are in accord with the equilibrium of normal functioning and growth. Thus it can be readily seen that water has practically none of the dangers attributed to drugs, and that such slight dangers as are possible are due to degrees of heat and cold. Therefore, moderation in water temperature insures our freedom from dangers. Even the inexperienced, if they are well-balanced and careful, may undertake the care of the sick with every confidence of bringing about no injurious effects.

HYDROPATHY OUTFITS IN EVERY HOME

In practically every house in the land, at any hour, may be found a complete hydropathic outfit to meet all emergencies. In acute conditions, the water bucket or faucet, towels and a fountain syringe are all that is necessary to meet most demands. A blanket and a lamp have often provided me with the cabinet pack for chronic conditions. I have never seen a home where I was unable to find a sufficient number of bathing accessories to meet the emergency, though in my early days, when in general practice,

I made as many as forty professional visits a day, and treated acute and chronic conditions in practically every form of illness.

My success in treatment by hydrotherapy over all other forms of treatment more than warrants the placing of this simple volume in the hands of all classes. My methods are so modified, however, that the shock of the cold plunge, as advised by Winternitz and his followers, is eliminated. The prostration and exhaustion of the prolonged sweat are avoided by merely affording the patient access to cool, fresh air during the period of sweating.

Convalescence is not retarded by medicines, nor is the vitality of the patient depleted by the means used for promoting recovery, when water is the curative agent. Typhoids, pneumonias, dysenteries and other grave conditions readily become benign and require no long protracted period for convalescence under water treatment. Nature is placed in the best possible condition to meet and cure any infection and rallies with vigor to throw off the disease.

The action of water, correctly and scientifically used, being physical as well as physiological, the weak are benefited quite as readily as the sturdy. This is far from true with drugs and medicines, which must rely solely upon their physiological properties and possess no physical therapeutic value.

The action of water is almost immediate. The good effects are often perceived in less than five min-

utes. I have seen the high fever of pneumonia reduced to normal, and delirium disappear in a few minutes under proper water "packs." Medicines, however, may be so powerful that they will frequently check the action of water. This must be kept constantly in mind; for the taking of medicines often modifies the benefits of water treatment.

CHAPTER VII

The Physiology of Disease

The activity and the technique of Nature appear simple and understandable, if we trace them from the result to the cause. But if we attempt to reason from cause to result, we meet so many possibilities and probabilities, idiosyncrasies and other influences, that Nature appears complicated, profound and uncertain. In a general way, therefore, in following Nature's methods, we have simply to observe the results of her efforts and coöperate with her in promoting the results that Nature wishes to obtain. If we follow this course, the uncertainties, complications and dangers of defect or disease are eliminated.

To put it in other words—help Nature, do not hinder her, in her work. There is one essential respect in which this help has until recently been noticeable by its absence. I refer to the fact that in all the annals of medical science there is not one line which relates to one of the most important of all branches of medical study—namely, the Physiology of Disease.

The scope of Nature, or rather, "naturalness" in the human economy, is very broad, and it can be

stretched to meet wide deviations from the normal or healthy state. Neither medicine nor surgery, even in their most advantageous applications, really cure abnormalities. At best, they can do no more than afford opportunities for Nature to restore the normal. Very frequently they retard and check Nature's efforts to promote cures and tend to aggravate the disease.

HOW NATURE ATTEMPTS TO THROW OFF POISONS

In all eruptive diseases, such as measles, scarlet fever or small-pox, Nature's first effort to eliminate the poisons is through the medium of the skin. This is shown by the very eruption that appears on the skin. Hence, our efforts should be in the direction of increasing the activity of the sweat glands, in order to enable them to eliminate the disease. Therefore, as a general rule, the thorough stimulation of these glands by means of a prolonged sweat will eradicate the poison and reduce the effects of these toxins to the minimum.

It would seem that no complex argument should be required to convince one that interference with Nature's efforts to bring about a normal activity and coördination of the various organs, only adds to her difficulties and serves to increase the dangers from the toxic process.

THE ALL-IMPORTANCE OF WATER

The first physiological fact about the human economy which it is essential for us to recognize is that *the fluid element in all the bodily secretions is water.* In direct association with this is the additional fact that *the presence of a substance, such as water, in a gland promotes its secretion by the gland.*

Increased activity of the kidneys and the sweat glands, brought about by drinking large quantities of water, is a proved illustration of this latter fact. To all animal and all vegetable life, water is absolutely necessary. Their functional activity and development depend largely upon the available supply of this precious, yet most common element. And this supply is of paramount importance in enabling Nature to meet the demands put upon her in overcoming defects and abnormalities in the functional activities. Let me give a concrete illustration of this.

THE LESSON OF THE INFLUENZA EPIDEMIC

During the epidemic of Spanish influenza in 1918 I treated over 200 cases of this disease. The treatment was so simple in character that any intelligent person could without difficulty carry it on in his own home. It consisted merely in markedly increasing the amount of water in the secretions.

This was accomplished by flooding the upper bowel with pure, warm water, followed by active stimulation of the kidneys, aided by the liberal drinking of water. Within twenty-four hours, in practically every case, normal functional conditions were restored.

To help contrast the efficiency of treating disease without medicine and with medicine, remember that the official records show the mortality of this epidemic at its height to be close to 20 per cent, while my treatment did not lose a single case. Furthermore remember that the duration of the disease treated by my natural method and without medicine was rarely more than twenty-four hours, as against three weeks under medicinal treatment. The amount of "health time" thus saved to the patients averaged twenty days each.

This simple method aided Nature in three ways:—

1—The increased fluidity of the secretions produced increased functional activity in every organ of the body, and thus enabled it to resist any poisons or defects in its functional workings.

2—The increased fluidity enabled the organs to throw off the poisons or infections with greater facility—thus eliminating the cause of the disease.

3—The increased fluidity actually increased the activity of the antidote to the waste product of the infection or anti-toxin, developing what are sometimes called "autogenous toxins."

WHY THE STOMACH REBELS AGAINST MEDICINES

The very thirst of these feverish patients should be the guide for our line of treatment. It is Nature's call for help, and should be heeded; just as the repugnance for medicine and the protest of the stomach against receiving it are Nature's protests against its use.

Another important physiological fact in disease is *the necessity for rest.* The very desire or inclination for rest is an indication that Nature demands that we use up as little as possible of our vitality in motion and mental exertion, and that this vitality be given opportunity to restore defects or abnormalities.

This need must not be ignored; for with prolonged exhaustion or lack of functional activity, Nature finally becomes unable to respond to rest. There is no factor so capable of hastening old age, of causing that lack of resiliency, that failure to respond to functional rejuvenation which is the signpost on the sunset slope of life, as insufficient and improper rest. Even the restrictions upon the activity of mature people, in striking contrast with the abundance of vitality in youth, are conclusive evidences of Nature's admonitions to moderation with increasing age.

Nature combats defects not only by increased functional activity of the various organs, but also by combustion, through the increased activity of the blood and the various tissues. This requires an ample

amount of oxygen, which is largely supplied by the air in the air-chambers of the lungs. This oxygen combines readily with various carbon gases. Air is largely free oxygen and free nitrogen. In order to promote combustion, the fresh supply of oxygen must be ample. Therefore, it is absolutely essential that the air-hunger, which is constant in nearly all illnesses, be satisfied.

A series of forty cases of typhoid fever, reclining day and night on a porch at the seaside, contrasted with the same class of cases in a hospital, demonstrated the open-air cases to be extremely mild and of much shorter duration than the hospital cases.

WHY FASTING IS BENEFICIAL IN SICKNESS

In acute conditions, Nature is so occupied in meeting the debilitating influence of these defects that she protests against the taking of food except in small quantities and of the mildest character. Rich foods, especially if highly seasoned, are repugnant to the acutely sick, for Nature is unable to meet the demands required for their digestion and absorption. The rest required by the system is nowhere more emphasized than in the digestive tract.

Also, the universal custom of treating acute troubles by the use of a cathartic or purgative salt merely increases activity, when Nature is demanding rest. On the other hand, the bland effect of water soothes,

quiets and cleans. Its cleansing effect brings rest from the irritation of the fermenting contents of the digestive canal.

There is no remedy so conducive to normal rest, not only of the digestive organs, but of the entire system, as the irrigation of the intestinal canal, or colon, supplemented by the irrigation of the small intestines and the stomach. In many diseases Nature, in her effort to secure this rest, adopts either marked expulsion or almost complete stoppage from all activity, both indicating the profound requirement for rest in the canal. The high irrigation is desirable in both these defects. In diarrhœal conditions, it cleanses and soothes, as well as dilutes the fermentation within the canal.

In conditions where Nature shows a sluggishness or lack of normal activity, this irrigation enables the canal to rest in a clean and relaxed state. A motion within the entire canal is either upward towards the mouth or downward through the rectum. When the movement of the intestines is markedly downward, the movement is general throughout the entire canal; therefore, if we accompany the irrigation by drinking large quantities of water, it promotes irrigation of the stomach and the small intestines.

HIGH IRRIGATION OF THE COLON, ACCOMPANIED BY THE DRINKING OF LARGE QUANTITIES OF WATER, IN ORDER, FIRST, TO CLEANSE AND THEN TO PROMOTE REST

IN THE DIGESTIVE CANAL, SHOULD BE USED IN EVERY CASE OF ACUTE DISEASE.

These simple measures are sufficient in themselves to meet the trouble in over 50 per cent of the abnormalities and acute conditions that arise within the human system.

CHAPTER VIII

The Physical Laws of Health

The human body must be considered, not only as a physiological organism, but also *as physical matter that occupies space, and as such, is subject to physical laws.*

The body maintains a standard of heat through physiological activity of the blood. It receives cold and radiates heat. The energy discharged is either true electrical energy or simulates it in its action, and therefore has similar results from a clinical standpoint. This is illustrated by the action of ice placed over the apex of the heart. A powerful circuit of discharged energy is liberated, which increases the force and regularity of the heart's action.

The action of heat and cold are twofold, physiological or remote, as well as physical or direct. The former is through the sympathetic nerve-system, and not only is reflex locally, but is also remote, in affecting the distant parts. The first-mentioned reaction is illustrated by the effect of cold wind, which first whitens the skin by Nature's effort to prevent chilling of the blood, then reflexly reddens it when the blood is pumped back to the skin to overcome the chill there. The second reaction is illustrated by the frequency

with which cold, wet feet will cause an internal congestion and a chill, commonly called a "cold."

INFLUENCE OF FRICTION

Friction of the skin is capable of generating frictional electricity. This electricity, through the nervous system, has not only a local stimulation, but a general stimulation of the entire organism. This latter fact is apt to be overlooked. Don't fail to give credit to the general stimulation for that sense of exhilaration which follows a massage treatment.

THE LAW OF OSMOSIS

The pressure of fluids is a physical property of the greatest importance in the functionating of the physical economy. These "Laws of Osmosis," or "pressure of fluids," can be arrived at only by results—not by any microscopic observations. The one all-important fact is that *when two fluids are separated from each other by an animal membrane, there is a movement from the heavier to the lighter and from the lighter to the heavier, through the membrane, to equalize their density.* That is, if blood is on one side of a membrane and water on the other, the two will seep through and commingle with each other until their specific gravity is the same. This is one of the great foundation stones upon which my system is built.

The heavier fluid having the greater fluid pressure, the movement of the heavier to the lighter outweighs greatly the movement of the lighter to the heavier. A rough illustration is sometimes given in the laboratory by filling two jars with water and putting sugar into one; then separating these jars by a tight animal membrane. After 72 hours' exposure, we find practically the same specific gravity in both, as well as the same physical properties. That is, both will contain sugar.

However, the activity and porosity of the live animal membrane far exceeds that of the toughened, dead membrane used in the laboratory tests. Therefore, within the human system, osmosis is far more rapid and effective than the jar test would indicate. The osmotic activity through the living animal membrane is in direct proportion to its blood supply, as well as to its porosity. Consequently, the osmotic action through the mucous membranes of the alimentary canal is far greater than is the osmosis of the skin.

The processes of food assimilation, except in the case of fat, which is lighter than the blood, and the assimilation of which is specially provided for by minute anatomical structures in the small intestines called "villi," is in substance the process of osmosis. The food being heavier than the blood in the membranes of the stomach, it is forced through those membranes into the blood.

THE BEST RESULTS FROM DRINKING WATER

To get the best results from water *as food,* it should be drunk when it can be absorbed in the stomach and small intestines, and carried in the portal system of blood vessels to the liver. This can only be achieved by the drinking of water with the meals, when its combination with food secures its absorption with the mixture of food and water.

If we wish to obtain its eliminating action upon the kidneys by increasing the fluidity of the urine, water should be drunk when it can be absorbed in the ascending colon, the blood circulation of which is in close relationship with the kidneys; that is, fully an hour after meals, when it will catch up with the meal in this part of the digestive canal.

If we wish to obtain a laxative action, we should drink water freely when it must reach the descending colon before it will meet the bowel contents. This must be as remote as possible from the time of taking food, that is, upon arising in the morning. In these cases, care should be taken not to eat too soon after drinking the water, but to allow it to leave the stomach before food enters that organ.

The importance of this last instruction cannot be too strongly emphasized. Unless mechanical obstruction exists at some point of its course (such as torsion of the pylorus, etc.), as is considered in Chapter XIV, it is very easy to wash out the entire diges-

tive canal every morning by the simple procedure of drinking two glasses of cold water upon arising. The laxative action of the water in the descending colon is well recognized. Therefore, it makes but little difference whether the water reaches that part of the bowel from the stomach, or by injection from the rectum. Both methods are efficient.

However, by drinking water in the morning, we secure not only a cleansing of the entire canal, but a general soothing of the membranes from the osmotic action of the water as it passes through the canal. It naturally follows that the most efficient remedy for constipation and inflammatory changes anywhere in the canal is the simple morning draught of cold water.

CHAPTER IX

Organic Functions

Generally speaking, all organs and all tissues consist of cells united by fibers which are termed intercellular substance. These cells are all characteristic of the organ or tissue, although they have certain characteristics that are common to all. They are differently shaped in different kinds of tissue, are encased in a membrane called the lining membrane, and contain an active nucleus. Frequently a cell will contain more than one nucleus. The cells vary in diameter from one thirty-one hundredth to one twenty-five hundredth of an inch, and are rarely larger. The active part of the cell is the nucleus, from which all cellular increase is derived.

The functions of all cell life are to absorb nourishment, eliminate waste, and to furnish material for growth. The secretion of the gland of which the cell is a part has practically no nutritive value, although it may be highly essential in promoting nutrition.

Thus it is with the bile, the fluid secreted by the liver; with the pancreatic juice, the secretion of the pancreatic gland, etc. The individual cells of the individual organs, when the system is working in harmony, serve to prepare secretions that are beneficial and necessary for the general co-working and health

of the entire system. A short description of the functions of the various organs in their relation to the general system will be helpful to some of my readers.

THE ORGANS OF ELIMINATION

From a hydrotherapeutic standpoint it must be kept in mind that the fluidity of the secretion of every organ and every cell is water (H_2O), so that primarily an insufficient supply of water results in a subnormal excretion of the waste products. In other words, water is the solvent of every substance that enters into the human make-up. However, it must be borne in mind, that this water is used a great many times within the body before it is finally thrown off by the kidneys, skin, lungs or other excreting organs.

As an illustration of this: with every meal about one pint of saliva, which is over 99 per cent. pure water, is secreted by the salivary glands of the mouth and swallowed, where in the stomach it enters into the conversion of the starches into sugar. Again, while the contents of the stomach and small intestines are fluid, the stool contains but from three per cent. to five per cent. of water, showing that the water is absorbed in the large bowel and again enters into organic activity.

Water is eliminated from the system by the four avenues of excretion. The air being heated in the lungs, increases the intermolecular space or vacuum,

and prompts the evaporation of water from the air chambers. A moderate estimate of the amount of water eliminated from the lungs in twenty-four hours would exceed a pint. The noticeable loss in weight experienced in people moving from the seacoast, where the atmosphere is laden with moisture, to a dry, hot climate is largely accounted for by the increased loss of water through the excess of elimination by the lungs.

Approximately 96 per cent. of one's perspiration is water under all circumstances. However, the water content increases with the rapidity of elimination. Thus is it that the water content of perspiration in summer is much greater (approximately 99 per cent.) than it is in winter. It is impossible to estimate any average loss of water through perspiration. Some authorities have put it as high as three pints in twenty-four hours.

The skin, however, is able to excrete more than this large quantity, as has been estimated in the Sanitarium in the case of the long, hot dry cabinet pack. It has been possible in a ten-hour exposure to eliminate in weight more than ten pounds (or pints) of water, making allowance for the scant kidney elimination during the long sweat. This does not mean that the patient has lost ten pounds from the sweat, but it does mean that the water he has drunk, which exceeded ten pounds, has been eliminated through the sweat glands.

The third system of elimination is through the kidneys. There is no standard of elimination through the kidneys under usual and ordinary circumstances. The quantity eliminated by the kidneys is in almost direct proportion to the quantity of water taken into the system. This quantity eliminated by the kidneys varies from three pints to one gallon, and in an illness such as diabetes as much as three gallons has been eliminated in twenty-four hours.

In reality the kidneys are the safety-valve of the blood, in that, by rapid elimination of the water from the blood, they lessen the volume of the contents of the blood vessels, and consequently the blood pressure.

However, it must be kept in mind that an organ in activity tends to continue in activity after the stimulation excited by the excess of water subsides. Thus is it a very splendid rule in all conditions of excessive blood pressure, to drink on an empty stomach large quantities of water, which will result in excessive stimulation of the kidneys long after the excess water has been eliminated. In this respect water is a remedy without a rival.

The fourth avenue of elimination is the stool. Practically all the water that enters the system enters by way of the stomach. Unless the specific gravity of the stomach contents is sufficient to exceed the specific gravity of the blood in the gastric veins, practically none of the water in the stomach is absorbed.

This is true also in the small intestines. So that the contents of the stomach and intestines are, as a rule, fluid. The propulsion of food and water through the small intestines is quite rapid, passing through the entire twenty feet of this small gut in from four to six hours, in contrast with that of the large bowel that usually requires from twenty to twenty-four hours in its passage through its five or six feet. In the ascending colon, which in reality is the human reservoir, water is mixed with the excretory matter and the stool and is rapidly absorbed. Here the osmotic pressure is practically always toward the blood in contrast to the stomach and small intestines. In other words, the water content of the food when it reaches the large bowel will approximate eighty per cent., while the stool will contain perhaps only five per cent. of water.

It is impossible to approximate the amount of water necessary for the individual to drink. This is a matter that every one must decide for himself. However, it is logically reasonable that an excess of water should be constant in the ascending colon.

FOODS AND THEIR DIGESTION

Foods generally are divided into carbohydrates (starches, sugars, and fats), proteins (nitrogen compounds), inorganic substances (water and mineral salts).

The chemical formula of sugars is identical with

the formula for starches, plus H_2O, or water. The chemical formula of fats is identical with that of sugar, plus water. Thus, it can be seen that water adds to the bulk of the starches and sugar eaten.

The custom of drinking water during a meal is not injurious chemically nor does it interfere with the digestion in the stomach. However, it does mechanically interfere.

Nature has provided a fountain of fluidity in the back of the throat in the shape of the salivary glands that impregnate water and ptyalin (starch digestant) and facilitate the swallowing of dry, hard food. To drink water for the purpose of washing foods into the stomach interferes with the normal salivary digestion. Therefore care should be taken not to supplement solid food with mouthfuls of water.

On the other hand the drinking freely of water before a meal dilutes the acids of the stomach as well as moderates the fermenting activity of the bacteria, which usually swarm in the stomach, and, to a certain extent, carries these materials into the intestines before the entrance of food into the stomach.

The custom of drinking a glass of cold water ten minutes to fifteen minutes before taking a meal should be encouraged, especially if it be accompanied by a few minutes' vigorous massage in the region of the navel. The purpose of the massage is to stimulate muscular activity of the stomach and a fairly rapid expulsion of the stomach content into the intestine,

where the alkaline bile neutralizes the acid stomach content, as well as checks the activity of the sarcinæ and yeast bacteria.

The peculiar relief afforded gastric distress by bowel-evacuation is in reality nothing other than a reflex of contraction of the stomach from the expulsion movement of the bowel. Thus is it that drinking cold water on an empty stomach, through its laxative action on the bowel, excites contraction of the stomach walls, and relieves many of the symptoms of dyspepsia.

The action of water on the proteid foods is largely that of a solvent. The function of the stomach is that of a churn. Its vibrations agitate the water and promote a separation of the proteids from the insoluble particles of food and also cause their suspension in water. Water does not enter into the chemical composition of the proteids in the intestinal canal. However proteids, in the liver, are capable of becoming glycogen (fat) and water undoubtedly enters into this change.

Inorganic salts of every nature, in fairly abundant quantity, are taken into the system through drinking spring or reservoir water. Agitation of the water adds greatly to its powers to hold in suspension quantities of these universal salts.

In addition water is capable of absorbing oxygen from the atmosphere. Thus is it that running water has a "freshness" that is not found in water that has

become stagnant. Considerable vegetable matter is also found in our drinking water.

CONVERSION OF FOODS

Keeping in mind, in order to simplify matters, the division of foods into carbohydrates, proteids and inorganic substances, we should be able to understand Nature's efforts to prepare these foods for their ultimate use as nourishment for the tissues. In bulk, starch comprises the greatest amount of our food. The difference between raw and cooked starch is merely that in the presence of heat the starchy content of the cell has ruptured the lining membrane and afforded free access of the digestive elements to the starch. Thus is it that the cooking of starchy foods is a step in the direction of digestion.

Civilized people accustomed to the eating of cooked foods, are generally incapable of digesting raw starch. The main digestive agent in attacking raw starch is the saliva. From chemical observation it would seem that the digestive power of saliva is in direct proportion to the usual amount of starch eaten. In other words, Nature accommodates itself to its demands. The South Sea Islander will thrive on raw starch and digest approximately five to six per cent. of it, while the average American man or woman, accustomed to eating (in the main) cooked starch, will be unable to digest even a small percentage.

"An apple a day keeps the doctor away" literally translated, means that raw starch is so foreign to the digestive ability of the stomach and intestines that Nature responds by her efforts to evacuate this indigestible substance from the system. It is possible, however, by a thorough mastication and mixing with the saliva, to digest raw starch. Therefore it is strongly advisable that all raw fruits should be eaten slowly and rendered liquid before they reach the stomach.

Cooked starch responds to the action of saliva. In the presence of moisture and the churning of the stomach and in a neutral or alkaline medium it is converted fairly rapidly into sugars by the intermediary steps of maltose, dextrin and glucose. However, in the presence of hydrochloric acid, ptyalin loses its fermentive power, until the food is converted into an alkaline medium by the action of the bile in the intestines.

Many physiologists contend that as high as forty per cent. of the cooked starch responds to the action of ptyalin in the stomach. In this they are undoubtedly wrong, for glucose or dextrose—the finished product of starch digestion—is never found in the stomach test meal except in moderate amounts, while starch is ever abundant.

The secretion of bile into the upper intestine just below that portion of the stomach which we call the pylorus, and which in reality is the dividing part be-

tween the stomach and intestine, reëstablishes an alkaline medium for the food, and with this medium the resumption of the digestive function of the ptyalin. The pancreatic gland secretes a digestive fluid called amylopsin, which is mixed with the bile in the common duct that empties into the upper small intestines. Amylopsin is also a diastatic (starch) digestant.

The structure of cooked starch being destroyed, the microscope fails to reveal the characteristics of the cell in a ruptured state. On the other hand, raw starch or starch not sufficiently cooked to destroy the cell is seen in abundance. In a well cooked starchy meal, such as boiled potatoes, mashed, it is practically impossible to obtain the iodine reaction in the stool, so that it can be readily perceived that the conversion of cooked starches into sugars is a pretty thorough process in the small intestines.

Sugar, in the form of glucose, is absorbed in the small and large intestines, carried by the ascending portal veins to the liver, where it is converted into glycogen (fat). From the liver it is carried by the lymphatics through the long thoracic duct, gradually entering the blood at the junction of the thoracic duct with the descending vena cava (large vein). In the blood, glycogen is attacked by the white corpuscles and further broken down and in addition the red cells of the blood supply it with oxygen convert-

ing it into plasma. Plasma is the ultimate of tissue nourishment.

Fats require practically no digestion. In fact, only a small percentage of fat is absorbed. Even such a fat as that found in mother's milk offers but minor nutritive value. Probably less than five per cent. of cream is absorbed by the villi of the small intestine. In fact, even our blandest fats and oils are so foreign to the intestinal content that they act as laxatives. An illustration of this is the purgative action of olive and castor oil.

PROTEIDS

To what extent the preparation or digestion of protein is bacteriological and to what extent it is fermentative cannot be definitely decided. Swarms of bacteria are found in the gums, teeth, tongue and throat of the normal healthy individual, and in the process of mastication these bacteria are implanted in the proteid food. Most of these bacteria become inactive in the acid medium of the stomach, although sarcinæ and yeast cells found in the normal stomach are exceptionally active in the presence of hydrochloric acid. These latter have practically no action on proteids, but readily attack the starches and sugars, generating alcohol. In the stomach, saliva acts as a solvent to the proteids and holds a certain percentage of them in suspension.

The early digestion in the stomach does not affect the proteids, however, the churning action of the stomach stimulates the gastric glands to secrete an enzyme called pepsin, which in the presence of hydrochloric acid is capable of converting proteids into peptones. What percentage of hydrochloric acid, found in the stomach content, results from the breaking down of the chlorides, and what per cent. is actually secreted is still a question of dispute among physiologists. Dr. Gane and myself are of the opinion that practically all of the hydrochloric acid found in the stomach is due to the breaking down of the chlorides by the action of digestion. However, while pepsin is capable of converting the proteids into peptones in a neutral medium, its action is enhanced by the presence of hydrochloric acid.

The pancreatic gland secretes a digestant, trypsin, capable in an alkaline medium, such as the bile, of further converting proteids into peptones.

The proportion of proteids digested is much less than is generally supposed. Five per cent. of raw meat will be broken down by the average normal stomach and intestines. Even the albumen of the white of an egg is found to be largely beyond the action of pepsin and trypsin and much of it is thrown off as waste matter in the stool.

Peptones are absorbed in the small and large intestines, and like the sugars are carried by the portal veins to the liver, and converted into glycogen. Thus

is it that the ultimate form of both carbohydrates and proteids is glycogen, but the glycogen obtained from the proteid source requires less oxygen from the blood, and consequently is more readily converted into healthy nourishment. Thus it can be seen that a diet largely of meat is much less prone to develop an excess of glycogen (obesity) than a diet consisting largely of sugars and starches.

The claims of certain dietitians that we derive most of our mineral salts from beneath the skin of the fruit and the vegetable are without foundation. The table salt we use, while largely composed of the chloride of sodium, contains a considerable quantity of calcium, magnesium and other salts. The blood of the meats, the juices of our vegetables and fruits, our drinking water, all supply liberal quantities of the mineral salts.

In fact, a very large percentage of our derangements in metabolism (tissue activity) is the result of excess of these mineral salts, and our object in dieting in such diseases as Arthritic Rheumatism (chalky deposits in the joints) and hardening of the arteries is to dissolve these salts and eliminate them from the human system.

Again, the most common benefit from the mixed diet is to establish an equilibrium of the presence of inorganic salts. The conditions that follow rapidly upon an exclusive meat and fish diet, such as scurvy and Beriberi, are largely the results of improper

equilibrium in the amount of these inorganic salts. This is one of the most important reasons for refraining from an excessive indulgence in proteid diet.

From a hydrotherapeutic standpoint, nitrogenous foods (proteids) should be encouraged in those diseases where the supply of oxygen is depleted or interfered with.

In Pneumonia we have a diminished supply of oxygen, as also in advanced Tuberculosis. These conditions existing, the excess of protein does not rob the blood of its oxygen, as does the excess of carbohydrates. In Malarias, where the red cell has been destroyed by the Plasmodia, and the oxygen content of the blood diminished, a proteid diet is indicated.

On the other hand, with full hemoglobin content of the blood and rheumatic manifestations, the liberal carbohydrate diet is desirable. This condition is usually found after the age of fifty years. In addition, the carbohydrates, as a rule, contain various vegetable tannates, which have a stimulating action on the liver cells, and increase the excretion of bile, thereby drawing the waste material of the brain and nervous system, and checking the fermentation of the intestines.

The digestibility of the red and the white muscular fibers, as judged by the examination of the stools, indicate that there is practically no difference in their composition. The difference in color indicates merely the difference of pigment, except in the case of

Kosher meat that is drained of its blood for use by the orthodox Jews.

The result of cooking on the carbohydrates is largely due to the expansion of the starch (granulose) and rupture of the lining membrane (cellulose). Consequently, the effects of heat, whether it be by boiling or baking the vegetables and fruits, are identical. This is not true, however, of the meats. The process of boiling loosens and softens the meat fibers, and renders the protein content more easily attacked by the gastric juices. Frying, on the other hand, toughens the fibers and enables them to resist digestion.

The lime content of eggs is especially abundant, while the egg itself furnishes a fruitful field for the putrefying bacteria in the intestines. These two factors place eggs in the category of being splendid food during early adolescence, and dangerous food past maturity.

CHAPTER X

Technique of Water Treatments

THE COLD WET PACK

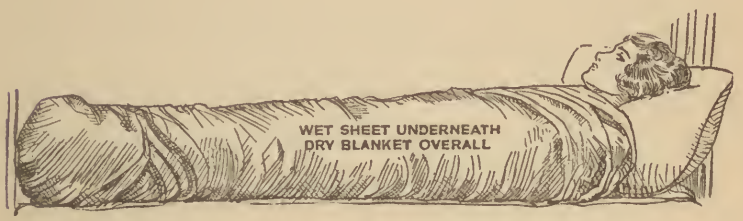
Very rarely, indeed, is it necessary or advisable to use the complete wet pack. It should be used only in grave conditions, as its reaction may be so severe as somewhat to interfere with rapid recuperation from the disease. In using the complete wet pack, spread a blanket across the table or bed, and dip a sheet in cold water. Roll the patient rapidly in the sheet, with the blanket rolled outside. As a rule, patients fall rapidly into a soft, quiet slumber, due to restricting the supply of blood going to the brain. In cases where the exhaustion is extreme I have found it advisable to let the patient sleep until thoroughly rested. The complete wet pack should never be repeated. In the event of a return of the febrile symptoms, a local wet pack will usually be found sufficient.

With the complete wet pack, all febrile manifestations will usually disappear in from three to five minutes. The heart action becomes soft and regular, but somewhat sluggish in its force. Breathing will be shallow; cough will usually be corrected.

Free perspiration, as I have found in some of my

cases, develops in from ten to fifteen minutes after the pack has been applied, although it is not infrequent to find the face free from perspiration because of the marked osmosis and the perspiration of those parts exposed to the pack. Because of the sweat, there is a fair degree of moisture in and about the pack long after the water in the sheet has become vaporized.

The reaction from the application of the wet pack usually appears within ninety seconds after application, and instead of a chill the patient experiences a sense of quiet and relief in that period.



General Hot Pack

Winternitz and Guenther placed much stress upon the action of the steam or vapor generated within the pack. But while there is some vapor, it is not in sufficient amount to account for the coolness and moisture of the skin. My contention is that the moisture and coolness of the skin are but manifestations of the osmotic pressure of the blood to the water in the sheet. Where the patient is not in the advanced stage of

exhaustion warm drinks should be given when the pack is first applied. But after reaction is established moderately cool water should be given freely —approximately a half pint every hour.

THE LOCAL COLD WET PACK

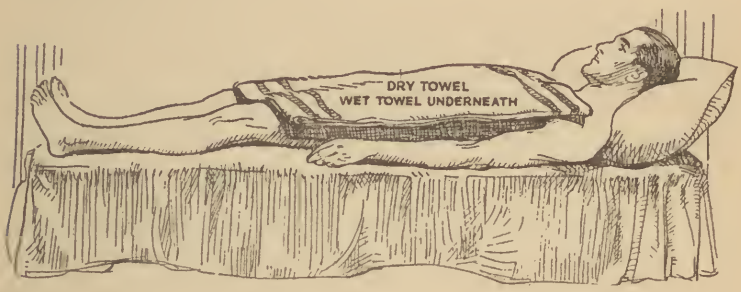
As a general rule, the local wet pack covers the throat, chest and abdomen, and is what we should employ in Pneumonia, Pleurisy, Bronchitis, Typhoid Fever, Peritonitis, Colitis and Gastritis. I have found the ordinary hand-towel, dipped in cold water, spread, dripping wet, quickly over the chest and abdomen and covered by a bath-towel, with the bed clothes drawn up around the neck, to be ample. The local pack is less severe in its shock, more readily used, and can be repeated at regular intervals with less reaction and less interference with recovery than the complete cold pack.

The exposed area of the local wet pack approximates about one-third of the complete wet pack, so that the osmotic drainage and perspiration more nearly approaches the accommodation that Nature has for deviation from the normal.

I have found that in the early stages of Pneumonia, with a temperature above 103 degrees, and with marked cough and cyanosis, it is advisable during the first six hours to change the wet pack hourly. After this every two hours will be found ample.

In Pleurisy it is advisable to change the local wet pack at half hour intervals as long as pain exists. Frequently, however, the first application of the cold wet pack will relieve the intense pain of the attack.

In Typhoid Fever the cold wet pack, during the first three or four days, should be changed every two hours. After the first week, a night and morning pack will usually be found sufficient. In Peritonitis, especially if it be Septic Peritonitis, the pack should be changed every half hour until pain ceases, then at less frequent intervals.



Local Wet Pack

Showing position of wet and dry towels

Contrary to the teaching of Guenther and Winternitz, I advise against friction, such as massage or rubbing, following the use of a cold wet pack. Nature is undergoing reconstruction and accommodation, and friction only increases the derangement by prolonging the congestion of the skin. After all

manifestations of disease have disappeared, Nature should have ample opportunity without interference to restore adjustment and accommodation of her blood supply.

Elaboration of technique in using the wet pack should be avoided. The patient lying in bed is naturally apprehensive, and rapidity and simplicity of application is the main necessity. Needless delay only increases the apprehension of the sufferer, and may interfere with the good effect of the pack.

It must be kept in mind that it is not the nature or character of the cloth or clothing of the pack,—it is the water that is important. The local pack, as applied to small areas, is rarely sufficient to meet the indication. For instance, the action of wringing out a towel in water and placing it about the throat in inflammatory conditions of the pharynx and tonsils rarely is sufficiently radical to meet with any satisfactory results. In conditions such as these the pack should cover not only the throat but also the chest and abdomen, in order sufficiently to draw the blood away from the congested parts of the throat.

THE LOCAL HOT WET PACK

The sole indication of the use of the local hot wet pack is for the relief of pain. Its virtue lies in the pain-reducing effect of heat. Yet it is so inferior in its action to the local or general hot bath in this re-

spect that I have practically discarded its use in all conditions. In sprains, bruises, and neuralgias the hot pack affords temporary relief. But I have found it far from satisfactory in comparison with the dry heat. The skin will tolerate a far higher degree of dry heat than it will of that from steaming water. I have seen cases where the hair was singed by the thermolite lamp, yet the patient did not complain of the heat; whereas, water above 130 degrees is very likely to excite inflammation.

The general hot wet pack should never be used. The general hot tub bath must be applied according to the results desired. Where it is used simply for cleansing purposes its duration should be brief, and the temperature should rarely exceed 110 degrees. It should be followed by a cold shower or brisk rub to increase reaction.

It must be borne in mind that the reaction of the warm bath tends to draw the blood from the skin into the internal organs. So that exposure after a warm bath is always attended by dangers of internal congestion. When the general hot bath is used as preparatory to the hot dry pack the duration of the bath should approximate ten to fifteen minutes, at a temperature of about 120 degrees.

After this bath, and prior to lying between blankets, the body should be briskly rubbed with a coarse towel to maintain the blood in the skin until the warmth of the hot dry pack has opportunity to

promote sweating. As far as possible the entire body should be immersed in the water. It should be kept in mind that under the pressure of the water in the bath the muscles of respiration have a certain amount of increased labor to perform in the act of breathing.

Few people recognize the enormous labor necessary to the act of respiration. The pressure of air at sea-level is about fifteen pounds per square inch. Therefore, the work required fully to inflate the lungs and overcome this external pressure will often exceed a weight-lifting effort of 200 pounds in the average man.

When we calculate that the average rate of respiration is about 18 to the minute, we can form some idea of the immense amount of labor necessary to furnish oxygen to the blood. Therefore, it is always imperative that we afford the patient free access to the fresh air. In the average bathroom, with the additional heat from the hot bath, the air is apt to become rarefied. Therefore, the prolonged general bath should be practiced with caution. In fevers it should never be used. The general hot tub bath is indicated mainly for treating local skin troubles. In general eczema the prolonged hot bath, frequently lasting an hour or more, is valuable for its solvent action upon the hard scales as well as its osmotic action upon the inflamed skin. This should be followed by the hot, dry pack. The same is true in Extensive Psoriasis.

In insomnia resulting from excessive excitement or brain fatigue, the general hot tub, followed by the dry, hot pack, usually brings about the desired relaxation. In fact, all general hot tub baths of more than ten minutes' duration should be followed by the hot, dry pack.

LOCAL HOT TUB BATHS

Whenever osmotic action is desired externally, the local hot tub bath is indicated. This is especially true where there is any defect in the circulation.

In varicose veins, whether they be accompanied by ulcers or not, hourly exposure by sitting in a tub of hot water, followed by a brisk rub and a rest in bed, produces exceptionally splendid results. The pregnant woman during the latter stages of gestation should be encouraged to relieve the pressure on the veins of her legs by half-hour exposures in a warm tub bath before retiring.

I have known even the most stubborn cases of varicose ulcers to respond to the prolonged local hot tub bath. Recently I was able to effect a cure of a bed-ridden patient—who had for fifteen years required the attendance of a nurse and physician—by the simple procedure of a morning and afternoon exposure of the limbs to the hot tub bath. Within three weeks the ulcers, eczema and varicoses disappeared, and with apparently permanent results.

In hemorrhoidal conditions and Pruritus (itch) the hourly exposure to the hot bath usually meets with prompt relief, especially if preceded by the high colon irrigation.

Bruises and sprains, especially if sustained after severe exercise or injury, are almost invariably relieved by a half hour exposure to the local hot tub bath.

COLD TUB BATH

The practice of exposing a feverish patient to the cold tub bath cannot be too severely condemned. This custom has been practiced by many of our larger hospitals in the treatment of their Typhoid Fever cases. The shock and the reaction from such an exposure is too severe in these conditions, for by the sudden driving of the blood into the internal organs, the danger from hemorrhage of the intestines is greatly increased. The same danger from hemorrhage is met with in acute Pneumonia and Tubercular conditions.

The cold tub bath should never be used except by people between the years of childhood and old age. It should never be indulged in in the extremes of life. It should be of short duration and never be used in febrile conditions.

The sole indications for the use of the cold tub bath are its cleansing and invigorating results.

In conditions of Hydro-bromidrosis (stinking

sweat) the cold bath, because of its invigorating effects upon the skin and sweat-glands, is without a rival. This is especially true of the offensive odors from under the arms or the feet. Brisk rubbing of the skin, accompanying or following the bath, increases the invigorating effect of the bath.

THE GENERAL COLD SHOWER

Winternitz gradually displaced all tub treatment by the use of spray or douche, claiming that the friction of the water striking the skin added to the stimulation, and was in reality a form of massage. In addition, the fresh water had a greater cleansing effect than the tub. In my own work, I carry ever before me the idea of not interfering with the equilibrium of nerve control; and I attempt always to obtain results through simple and gentle rather than radical efforts. I have seen quite marked exhaustion following the cold spray where the force of the water has been severe.

However, with the average healthy adult, the morning shower of from two to five minutes' duration, accompanied by friction, is invigorating. The shock of the cold shower will be greatly modified by standing in a couple of inches of warm water, as reflexly, the exposure of the feet to warm water will cause a congestion of the skin and lessen the shock of the cold shower. In hysteria and general malaise

and exhaustion the cold shower will prove stimulating and invigorating. But it should never be used in congestive or febrile conditions. Also, the hot shower bath should never be used in disease except for cleansing purposes. However, it can be used as a substitute for the hot tub bath preceding the hot, dry pack.

THE ICE PACK

The ice pack may be used to secure three objectives. First, it must be borne in mind that cold retards any bacterial or putrefying activity. Second, prolonged exposure to the ice destroys sensation. Third, the ultimate reaction from a prolonged exposure to extreme cold drives the blood from the exposed parts.

Thus, the use of the local ice pack is of immense value in the treatment of those conditions that affect those parts that are readily frozen through, such as the throat in Diphtheria. Guenther obtained almost specific curative results by binding the throat loosely in a towel packed with cracked ice, and maintaining this ice pack over the parts for 72 hours. Not only did the ice check the inflammatory changes, stop the activity of the diplococci of Diphtheria, and relieve the pain, but it always checked the reflex spasm, and afforded complete relaxation from the spasm about the glottis and vocal cords.

During my early practice, I treated acute Gonor-

rheal conditions with invariable success by maintaining the ice pack around the male organ, or within the vagina for from forty-eight to seventy-two hours. This treatment is almost specifically curative, and clears up the condition in an incredibly short time.

The custom of applying the ice pack to the head in congestion to the meninges cannot be too severely condemned. Bone is a very poor conductor of heat or cold. Therefore, it is practically impossible to reach the brain through a prolonged exposure to the ice pack. Under these conditions the general cold wet pack, by drawing the blood to the extensive surface of the skin, very effectively reduces any congestive inflammatory condition of the brain or spinal cord.

The attempt to correct so-called Appendicitis by the application of ice over the abdomen is farcical. The appendix, being protected by thick layers of gut, omenta, fascia, muscle and skin, cannot be frozen, and the benefits resulting are merely those that would be arrived at by the use of a small local cold wet pack.

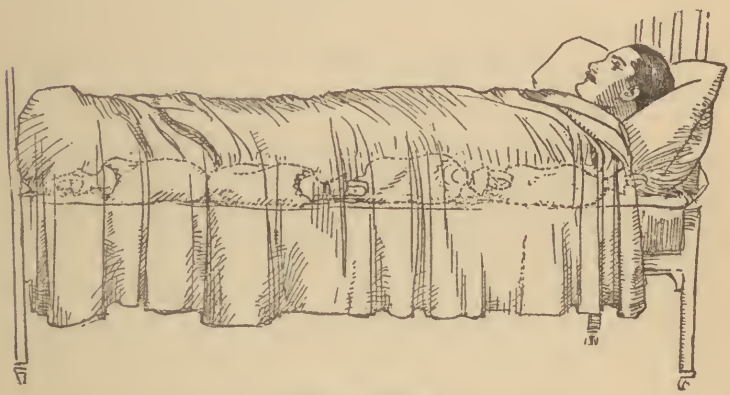
THE HOT DRY PACK

Probably this means of cure is used more than any other by the general public. In America it is the almost universal custom to correct a cold by producing a sweat in a warm bed accompanied by drinking copiously of hot lemonade or a hot toddy.

The hot dry pack varies in duration as well as in intensity. The object to be obtained must be the guide for this duration and intensity. For instance, the average cold will be relieved by the ordinary sweat for two or three hours, while it may be necessary to sweat the patient for ten to twelve hours to eradicate Syphilis.

Hydrotherapy must, first of all, be simple, and must be met by those means that are at hand, so in the treatment of ordinary conditions we must resort to those means usually found in the average home. The object of the hot dry pack is to produce sweat and thus drain off infection and internal congestion. The extent of the sweat must depend on the object we wish to secure. Primarily, all hot dry packs where possible should be preceded by a hot tub bath of moderate duration. Because of the chill produced by the sheets, it is advisable that the patient rest between soft blankets. In addition, the woolen blankets more readily absorb the sweat. The bed or table should be covered by a soft blanket. When the patient is covered, bottles containing warm water should be placed about him and then another blanket wrapped around him. During the hot tub bath the patient should be given warm drinks. After perspiration begins, however, moderately cool water best meets the indications. When the sweat is fully established the windows should be opened in order to give the patient free access to the air.

In children the use of the hot dry pack will be found most practical, for they cannot be controlled in the hot cabinet pack. Practically all children's diseases should be treated by the hot dry pack. In the eruptive diseases such as Scarlet Fever, Measles, Chicken Pox and Urticaria, the duration of the sweat should



HOT, DRY PACK

Showing hot water bottles between blankets

be for at least six hours. In such conditions the hot water bottles should be gradually changed to keep the heat up to the maximum.

During the entire pack the child should be encouraged to drink freely of cool water.

In rheumatic conditions affecting children it will in many cases be found necessary to use the hot dry cabinet pack repeatedly in order to effect elimination of the toxins.

For ordinary congestive conditions the three or four hours of exposure to the hot pack, followed by repose, will usually be ample. In general, the hot dry pack is much inferior in efficiency to the hot dry cabinet pack.

THE HOT DRY CABINET PACK

When we produce intensive sweating, as in the Turkish and Russian Baths, by means of the hot dry room or hot steam room we throw increased labor on the respiratory and circulating systems, and rapidly produce exhaustion. On the other hand, when we give free access to fresh air either by the open window or by the tube and funnel exposed out of doors, there is practically no depletion from even excessive sweating, such as we produce in the correction of Tuberculosis, Rheumatism and Syphilis.

In Guenther's clinic these prolonged sweats were given on the open porch in moderately cool weather, and the patients experienced practically no fatigue from an eight hours' exposure. In fact, many of them expressed themselves as greatly refreshed during the sweat. As a rule, in these prolonged sweats the patient will sleep peacefully. However, it is very essential that they drink water at fairly regular intervals to facilitate elimination. The hot air electrical cabinets are rarely practical in the home. The Thompson Hydropathic Table is the most practical of all the

hydropathic appliances, and can readily be used for the hot cabinet pack or the local wet pack. Also, it is most convenient, as it occupies but very little space.

In the treatment of inflammatory conditions of the kidneys, where the object is to remove chemical toxins through the skin and thus relieve the kidneys, the sweat should not be intensive, but should be prolonged in order to enable the kidneys to recuperate from their diseased condition. In marked Uremia (stupor) a seventy-two hours' exposure to the moderate hot cabinet pack meets with best success.

Before entering the hot cabinet pack the high colon irrigation should be used to insure rest in the intestines. This should be followed by fifteen minutes in the warm tub bath. Then, without drying, the patient should enter the hot cabinet pack.

Where the exposure exceeds four hours in duration, the patient should be given equal parts of milk with cool water, instead of the plain cold water. This will afford simple nourishment and offset the fatigue of the prolonged sweat.

In malarious conditions the sweat should be active, and of from four to six hours' duration, followed by ten hours' rest in bed. To insure complete elimination of the malarious infection it is advised that the patient submit to several repeated exposures of the hot cabinet pack. In Rheumatism the exposure to the hot cabinet pack should rarely exceed three hours, but should also be repeated several times. In eliminating

Syphilis in Guenther's clinic, we persisted in the exposure twice weekly, for a ten hour duration, maintaining a most active sweat during all this period. I am quite convinced, from experience with many hundred cases, that this treatment is practically specific in Syphilis.

In Pulmonary Tuberculosis a five or six hour exposure, twice weekly, until the patient has had six to eight exposures, is advisable.

Contrary to Winternitz and Guenther, who terminated the sweat by a vigorous massage and rubbing of the skin, my custom has been to withdraw the heat and let the patients rest, until complete reaction has been established. During the prolonged sweat provision must be made for the possibility of the patient requiring to void urine. However, with the prolonged sweat this is usually not necessary.

CHAPTER XI

Germs and Their Functions

There are conditions under which tissues are more able to withstand the assaults of infection than when they are under other conditions. A tissue already invaded and weakened by one disease falls a prey to another infection against which, under better conditions, it might be immune. How often we have seen a relative or friend, with lungs depleted by pneumonia, subsequently develop tuberculosis! Many decayed spines and hips are the outcome of some injury to the parts which depletes their ability to withstand the onsets of the infection.

What is it within us that enables us to resist disease? *Nature produces her own cure. But how? That is the question!*

GERMS AND ANTI-BODIES

Some theorists argue that the germ is its own antidote. In other words, that each germ generates an anti-body which attacks and destroys the infecting germ. Yet were this so, the cure of disease would merely be the substitution of one form of infection by a more powerful one. This theory, in my opinion, is fallacious.

The cure of infection is a physiological action on the part of Nature, which, stimulated by the presence of the germs, develops an autogen or digestant to overcome them, just as the presence of food in the stomach will excite the secretion of pepsin and hydrochloric acid to digest it. The ability to resist the ravages of disease is almost identical with the ability to digest food.

The Irish peasant girl will grow thin on the rich nitrogenous food of the average bounteous American table, until she has developed the capacity to digest this food, instead of her former diet of potatoes and oatmeal.

Physiologists know that the empty stomach will secrete no pepsin nor hydrochloric acid, and that the mere presence of food in this organ will start active secretion of these digestive fluids. Even the odor of food is enough to start the secretion of the salivary glands and make the mouth water. Even so, with the presence of germs in the body, Nature at once attempts the manufacture of a digestant for them.

The child who has had all the children's infective diseases is capable of meeting and checking them. The very digestant that consumes the infection is developed by Nature in these children's bodies, and therefore keeps them immune to the disease.

Professor Dalton of England and Dr. Russell of New York have tried with gratifying results the gen-

erating power of water in developing this autogen or digestant. I have followed their method for a number of years, and the results have been very encouraging.

In recent years, however, I have been converted to the practice of generating the digestant of disease within, instead of outside the human body. For example, instead of injecting the chemical autogen of grippe, I have flooded the transverse colon with water, where it is rapidly absorbed, and this autogen is generated in the fluids and glands of the body.

HOW WATER GENERATES AUTOGENS

There is no question but that water has the power of generating the digestant or autogen of infection. But why go through this delay of waiting till the digestant develops? The body itself is best adapted for generating the digestant, and the work can be done immediately by increasing the supply of water within the system.

In the ascending and transverse colon, water rapidly enters the blood and quickly reaches every tissue and secretion of the body. Thus it is that in all infective diseases the high colon irrigation brings prompt control of the disease. The efficiency of this method excels all others, and its simplicity and economy leaves it without a rival. Where this infection

is very severe, as in lobar pneumonia, the irrigation should be given twice daily. But only rarely will this be necessary.

During the epidemic of Spanish influenza, I never found it necessary to use more than one irrigation, and rarely did the disease exceed thirty-six hours in duration. With the stomach contracted water drunk by mouth reaches the ascending colon in from one-half to three hours, so that with free drinking of water, the colon can also be constantly flushed.

This digestant or autogen is unquestionably a chemical agent, some organic compound, neutral in reaction and physiological to the human economy.

CHAPTER XII

The External Use of Water

SEA BATHING

For general tonic effect in run-down conditions, there is nothing quite so effective as sea bathing. Sea water, which is usually of a specific gravity of 1.926—fresh water being standard at 1.000—has, because of the salts and chemicals held in solution, a greater tonic effect upon the skin and nerve endings than fresh water.

But care must be used in this, as in everything else. It is a common but mistaken idea that there is no danger of taking cold after bathing in sea water, or from the mist or spray which may carry in on the wings of an ocean breeze. The stimulating effect of the salt may prevent, in some degree, the chilling of the skin and the shock which drives into the large blood vessels of the chest and abdomen the blood from the surface capillaries. But this holds good only to a limited degree. Imprudent exposure at the shore may be followed by the same disagreeable results as follow wetting with any other kind of water.

It is not well, except for those in very robust health, to indulge in a sea plunge while fatigued.

For sea bathing demands more expenditure of physical energy than any other variety of bath, especially if it be merely incidental to a vigorous swim. Consequently, this might be piling additional exertion upon exhaustion, the after-results of which are inevitably depressing. On the other hand, a vigorous, full-blooded person, entering the water for a short swim, or better still, a long float, while fatigued, will come out greatly strengthened and refreshed.

Don't stay in until you are chilled! Ten or fifteen minutes is long enough for most people to remain in water—although this is entirely a matter of idiosyncrasy and circulation. It is well for those who are debilitated or who have any tendency towards cardiac weakness to be extremely careful not to expose themselves to the full impact of the surf. The force with which even a medium-sized wave dashes against a solid object is sometimes highly dangerous to a person with any heart weakness; while the struggle against the undertow, found almost invariably when the surf is high, puts an unusually severe strain upon the entire muscular and circulatory system.

Sea bathing should be avoided by the aged, by the very young, by feeble children, by all those who lack vitality to develop the proper reaction, by women advanced in pregnancy and by nursing mothers. It may also prove most dangerous—not to say disastrous—for those suffering from tuberculosis, with hemorrhage of the lungs, from apoplectic conditions

and from heart complications. It may also produce disagreeable effects in those who have gout and rheumatism, diseases associated with extreme sensitiveness of the skin, or certain morbid conditions of the blood.

The beach furnishes still another health-quickener, however, apart from the salt water which it borders. This is due to the reaction of the skin and to the increased activity of the circulation of the blood in the surface vessels—just as sleep is infrequently induced by stimulating the circulation with a hot bath.

A similar effect is usually brought about by sea air, especially during the first days of exposure to it. There is, in many people, a constant but not oppressive sense of drowsiness, and the sleep at night is deep and refreshing. After bathing in the salt water, this pleasant languor is likely to be quite evident. So if it is possible to take a short nap after the dip in the surf, it will help amazingly to tranquilize the nervous system and aid in the relief of nerve irritability and insomnia.

HOT AND COLD BATHS

The chief value of bathing lies in the exhilaration that should follow it. The cold bath is the most valuable of all baths for most people, but if you do not get the proper reaction from it, as described in Chapter IV, then you should let the cold bath alone.

If it leaves you shivering, chattering, shrinking, blue-lipped, or if you suffer much from cold a short time afterward, then the cold bath is not for you. Your system is not capable of achieving the proper reaction; and it should be your aim, by means of a system of exercise, a properly regulated diet, plenty of sleep and sunshine, and if possible, an outdoor life, to build up your system to the point where it reacts instantly and joyously to a dash of cold water.

The effect of cold water upon the circulatory system has been explained. Two Italian scientists, Vinaj and Maggiora, made tests to ascertain the effects of water at various temperatures by noting weights that could be lifted with the middle finger after various kinds of baths. There was a distinct increase in power after the cold bath, and an almost equal increase after the hot bath, but the warm bath showed no stimulating effect whatever.

The degree of coldness of the water is a matter that must be regulated according to the vigor of the individual. There are some husky citizens who can break the ice on a lake in winter and enjoy a plunge in the water, but not one person in ten thousand ought to attempt such a thing. Sixty degrees is cold enough for many people. The water as it comes from your bath-room faucet in winter will rarely go below 50° unless the pipes run very close to the surface of the ground; and many vigorous persons bathe in this with great enjoyment. Of course it is highly

advisable to have a warm bathroom in which to take your cold plunge or shower.

Never take a cold bath when the body is much fatigued or exhausted by exercise, as the chances for a good reaction are then greatly reduced. For the same reason a bath, and particularly a cold bath, should not be taken soon after a full meal, while the stomach and intestines are hard at work. The blood is too busy with the digestive organs, and calling it away from this duty is likely to be followed by a diminished activity of these organs.

Hot baths may be taken at 110° to 115°, or if you would go as far as the Japanese, 120° to 130°. With the hot bath, there is a dilatation of the surface blood vessels and a genial feeling of warmth. This is the real pore-opening and body-cleansing bath, the one that carries away large quantities of the cast-off material of the skin. It is the only safe bath for those with heart irregularities, kidney diseases, rheumatism and blood pressure conditions. It also relieves the ache of fatigue better than any other kind of bath (except the Turkish bath, which should never be indulged in by any person capable of getting up a sweat of his own), by dilating the pores and favoring the elimination of fatigue toxins.

THE TUB BATH

It is hard to find fault with either the tub bath or the shower. Both have their advantages; but on

the whole, I believe that a tub bath is better for all who can stand it than any splash, sponge or shower bath, for this reason: when we stand, our internal organs hang draped vertically from our backbone; when we lie, they rest horizontally upon the backbone or drape from it on either side. But when we are immersed in water, the pressure on all surfaces is equalized. The lungs, spleen, liver and other internal organs float in a water bath in altered relations to each other. This relieves pressure on the heart and arteries, and gives a restful and highly beneficial gravity massage to all the internal organs.

There are not many (exclusive of invalids and those confined to their beds) who cannot with benefit enjoy some modification of a tub bath, taken in a warm room, as all baths except swimming baths should be taken.

Immediately upon arising in the morning is the best time to take a cold tub bath, for then your body is thoroughly warm. Never take a cold tub when hands and feet are cold. One cold bath a day is usually sufficient, though several may be indulged in in the hot summer months. Do not stay in a cold tub more than a few moments; then give the body a vigorous rubbing with a coarse towel to promote the reaction.

If you do not feel equal to a cold tub, run a few inches of hot water into your tub—as hot as you can stand it—sit in it and splash yourself vigorously until

you feel a thorough and genial glow. Even with this bath, it is best to run a dash of cold water over the skin afterwards from the shower or from a sponge, or pass the cold, wet sponge rapidly over the skin in order to prevent a chilling reaction which may rarely follow a hot bath. The cold water will not give you such a shock as if you had applied it before the hot bath, and it will increase your feeling of exhilaration. Then rub vigorously with a coarse, dry towel.

THE SHOWER BATH

The shower bath, in addition to the virtues of hot and cold water, has the additional benefit derived from the light percussion upon the skin of small streams of water. As with the tub bath, the cold shower has perhaps the greatest value as a tonic, but the shower makes it possible conveniently to alternate cold and hot water in such a way as to give one a veritable course in skin gymnastics. Let hot and then cold water run alternately over your skin for a few moments each, using both to the extreme limit of bearability in temperature. Do this four or five times, ending with the cold shower, and then use the rough towel. Thus you have caused alternate contraction and dilation of the skin blood vessels, amounting to what might be called massage of the circulation. It promotes a splendid reaction, and is of immense value in most conditions of low vitality.

COLD RUBS AND SPLASHES

If you don't feel quite like jumping into a tub of cold water, you may have a slightly less vigorous bath by running a few inches of cold water in your tub and taking a splash bath; that is, squat in the water and take up handfuls of it, which are poured or rubbed over the neck, shoulders, arms, chest, under the armpits and down the legs. Some people prefer the sponge shower, which consists of soaking a large sponge in cold water and squeezing it over the head and shoulders, thus approximating the shower. Or the body may be sponged quickly all over with the cold, damp sponge. Such baths as this may be taken in the bedroom, only with the aid of a bowl or basin. The important thing is to do it quickly, avoiding chilling, and follow it with vigorous toweling. Some calisthenics are always valuable in connection with a morning bath of any kind, to massage the internal organs and to assist in starting the circulation vigorously on the day's work.

DOUCHES

Most of the methods employed in hydriatic institutes are rational. This is particularly true of their employment of different forms of douches. These comprise the Charcot, Scotch, Fleury, Shower, Cataract, Jet, Circular, Fan, Spray and other forms

which gain their names from the direction thrown, from the amount of pressure used, from the temperature or its variance and from the duration of exposure to the stream.

The effects aimed at are mechanical and thermal. The sudden blow of the cold or cool water upon the skin aids in forcing the quick contraction of the coats of the surface blood vessels, which shock is transmitted by the nerves to the internal organs. The douche is a slightly more vigorous stimulant of the circulation than the ordinary shower. There is no doubt that these baths, in properly selected cases, improve the appetite and digestion, deepen the respiration, stimulate the heart action and act as tonics to a jaded or weakened nervous system.

A "percussion douche" can be taken at home, if you have a suitable room for it, with the aid of a member of the family and a garden hose. The water, thrown from a little distance, gives the skin a lively massage, but do not overdo it. Not many families, however, have an indoor place where this douche can be accomplished.

SITZ BATHS

The sitz or hip bath is in great favor in most hydropathic institutions. Regular sitz bath tubs are made and are now installed in some bathrooms; but if you have none, you can approximate the sitz bath

in your large bath tub or in a common small wash tub. The idea of the sitz bath is to immerse the pelvis and organs of the lower abdomen in the water without bathing the rest of the body.

The cold sitz bath, which should never be taken at a temperature lower than 55 to 60 degrees, is very invigorating to the brain, spine and sexual organs. It also stimulates the kidneys, promoting a flow of urine, and has a general tonic effect on the organs of the lower abdomen. Remain in it not more than five minutes in order to get the best effect. For most people, it is best to immerse the feet in hot water in a smaller tub while taking the cold sitz. This bath is valuable for the stopping of hemorrhage from the uterus or other pelvic organs.

Tepid sitz baths (70 to 80 degrees) are sometimes used when a sedative effect is desired. They should last from fifteen to twenty minutes. Then there is the hot sitz, which is used with the water at from 105° up to as hot as it can be borne. This bath is especially valuable in treating inflammations of the pelvic organs, hemorrhoids, itching, or for relaxing the sphincter muscle of the bladder in retention of urine. This bath may be prolonged to a half hour or an hour, if desirable.

If you have any doubt as to whether a hot or cold sitz bath is the better for you, it would be wise to refer the question to an authority on the subject; for harm may result from the injudicious use of a cold

hip bath, unless your condition specifically calls for one.

WET PACKS AND COMPRESSES

The wet pack or compress is simply a modern, honest form of the old-fashioned poultice. When used for internal disorders, none of the ingredients of the old-time poultice except the water had any chance to affect the system, or even, as a rule, did they possess any therapeutic value. If Grandmother had omitted the flaxseed or other supposed medicinal agents, and wet the poultice with plain hot water, it would have worked just as well, and usually better.

Folded linen or soft cotton cloths will do for the cold wet pack. Oiled silk, mackintosh, rubber or heavy flannel should be used to cover the pack, by way of excluding the air and to avoid wetting the garments or bedding. Hot wet packs are usually several layers of flannel or pieces of blanket material wrung out of boiling water and applied to the skin as hot as it will bear it. These should also be covered with waterproof or heavy cloth.

As these are usually given to patients suffering with fever and headache, it is best to keep cold, wet compresses on the head at the same time. After the hot, wet pack, the skin of the part covered by the pack should be vigorously rubbed with very cold water for a few moments.

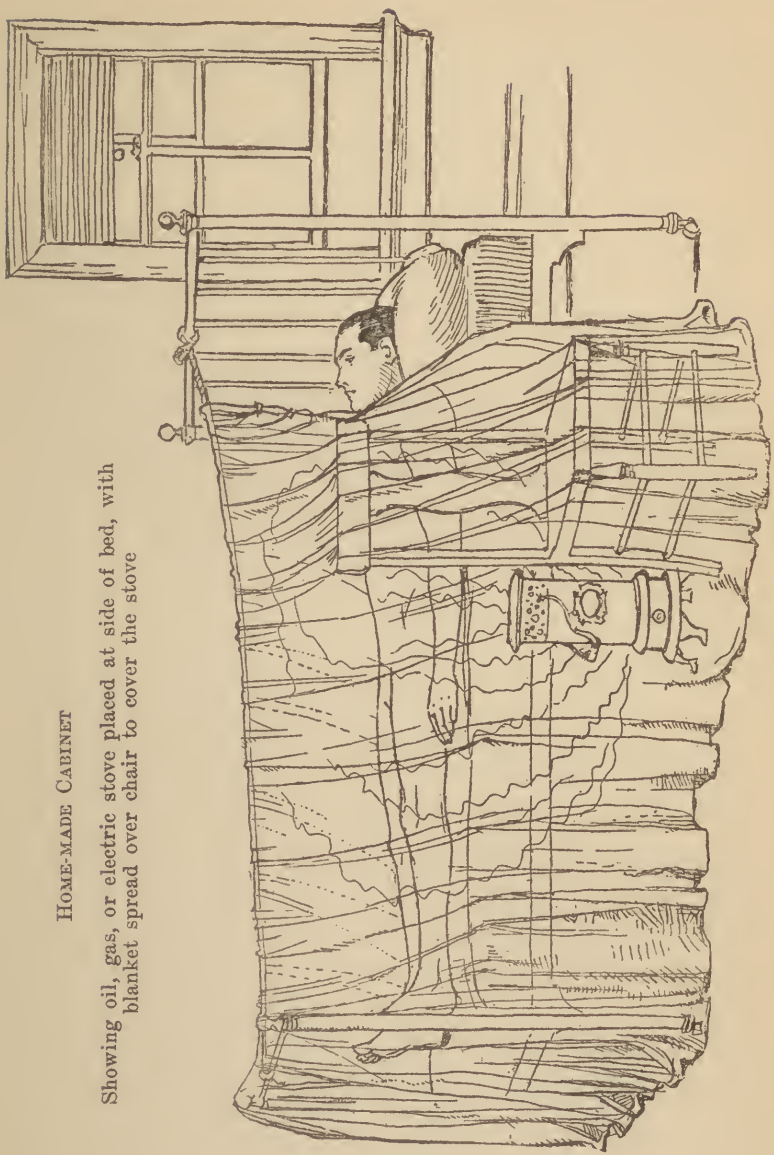
THE COLD MITTEN FRICTION RUB

The cold mitten friction is a good rub with which to follow the hot, wet pack, though it may be useful at other times, also. It may be taken in bed. The attendant wears a home-made mitten fashioned from mohair cloth, rough toweling or some other coarse fabric. This is dipped in ice water, squeezed a little, and then the patient's body is rubbed with it, only the part worked upon being uncovered at the time. Thus begin on one arm, then cover it up and take the other arm; then the legs, chest, abdomen and back. It is a good process to follow the sweat in colds. When it follows a local cold pack, it need be applied only to the part that was covered by the pack.

THE HOT, DRY PACK

Thick, soft blankets are warmed, and the patient is rolled in them, with hot water bottles and jugs around him to promote perspiration. The electric bed heater is also valuable for this purpose.

The hot air cabinet is also a valuable article to have around the house for the purpose of promoting a fine sweat when needed. Heat may be supplied by an electric or gas heater or oil lamp, taking care that the patient is not burned. He should be allowed to breathe fresh air during the process. If the patient is not able to sit up, a substitute dry hot air cabinet



HOME-MADE CABINET

Showing oil, gas, or electric stove placed at side of bed, with blanket spread over chair to cover the stove

may be arranged by draping blankets over a cot so as to exclude outside air, and putting the heater underneath. Extreme care must be taken to be certain that the bedclothing is not set afire.

THE SALT GLOW

You may imitate a sea-bath in your bath room by using strong salt water, then rinsing off with clear water and using a coarse towel. Or the rubbing sheet may be employed—a bed sheet wrung out of salt water and wrapped about the bather's body as he stands in the tub or basin. Vigorous massage—kneading, pinching and plucking by an attendant, enhances the invigorating action of this bath.

But the best of all salt baths is the salt glow. This consists of taking about a pint of coarse salt, wetting it well and rubbing it on the skin of the body until a fine red glow results, then taking a dip or shower of plain water to wash it off and drying with a rough towel. There is no more powerful stimulant for the skin than this.

CHAPTER XIII

Water in the Alimentary Canal

Water has a number of important functions in the alimentary canal. It is a food, a lubricant, a solvent and a chemical ingredient. It is also a diluent, and is capable of exercising local and remote physical and physiological action. The use of water as a food needs only passing mention in a work of this scope; the same may also be said of its merits as a constituent of chemical and physiological combinations with other foods.

However, do not fancy that there is an insufficient supply of water with the average meal; for with each meal there is secreted and swallowed a pint of saliva, which is more than 99 per cent water.

Water in the stomach and intestines varies in its action according to its specific gravity, as well as to its degree of heat and cold. Warm water, drunk freely upon rising, dilutes the acid resulting from the fermentation in the stomach, as well as diffuses the bacteria in the stomach contents, and produces a mild osmotic draining of the blood vessels of the stomach. It has no stimulating effect upon the muscular activity nor the membranes of the stomach. The drinking of warm water upon arising in the

morning, therefore, should always be accompanied by efficient massage of the abdominal organs to supply stimulation to the muscular coating and nerve supply of the stomach and intestines.

This massage should be continued until the gurgling sound indicates that the water is being expelled into the intestine. This massage, in fact, is very necessary, for a prolonged exposure of the membranes of the stomach to water is likely to produce an excess of osmosis, with a resulting depleted functional activity of the gastric glands. Therefore, if warm or hot water be drunk in the morning, it should be followed by abdominal massage, to secure the necessary stimulation. In the small intestine the action of warm water is identical with that of the stomach—that is, solvent, diluent and osmotic. If accompanied by massage, the drinking of warm water will probably be followed by activity in the gall bladder. Thus we will have the additional benefit of a copious discharge of bile into the intestinal contents. This is most important, for it demonstrates that plain or distilled water is superior by its osmotic action in this respect to mineral or saline waters.

COLD WATER IN THE ALIMENTARY CANAL

Because of its lack of stimulating power to the muscular coats of the digestive canal, the tonic effect of warm water is far inferior to that of cold water.

By softening the stool and increasing the lubrication and fluidity of the bowel, warm water drunk on an empty stomach in the morning has but a moderate laxative effect. Even in advanced ulceration, accompanied by hemorrhage, I have found the use of cold water so superior to that of warm water that I have practically abandoned the use of warm water for the morning draught.

The sudden introduction of large quantities of cold water into the stomach is directly stimulating to the peripheral nerves in the stomach membrane. Reflexly, we have not only muscular activity, but also an effort on the part of Nature to distribute this cold over a greater area, to enable the organism to meet the shock of the cold water. This latter fact means a fairly rapid expulsion of the water into the small intestine. Again we have reflex congestion of the mucous membranes of the stomach to overcome the effects of cold, which affords increased opportunity for osmotic action, while rapid expulsion into the intestine means an efficient cleansing of the stomach.

So efficient are these means of cleansing and stimulating the stomach and intestines that it has been my uniform practice for twenty years to prescribe it in all abnormal conditions of the digestive system.

The action of cold water on the small intestine is identical with its action in the stomach, with this exception, that as the heat of the stomach has moderated

the temperature of the water, the effectiveness is proportionately moderated.

THE TECHNIQUE OF RECTAL IRRIGATION

Water should never be introduced through the rectum with the patient sitting erect or lying on the side. While sitting erect, you are trying to force the water uphill, and probably none of it will ever get past the sigmoid flexure. Furthermore, trying to force the water thus may cause dilatation of the rectum.

When lying on the right side, the water is again called upon to force its way upward past the sigmoid flexure, which it will not be able to do. If on the left side, the descending colon may be irrigated, but the transverse colon is now a perpendicular tube, and neither it nor the ascending colon will be likely to receive much if any water. Furthermore, the folds of the rectum and the sigmoid flexure act as cup-like valves while in these positions, to retard the passage of the stool.

If a patient is too weak to assume the knee-chest position, let him lie upon his back and elevate his hips about a foot higher than his head before applying the irrigation. This may be done by raising the foot of the cot or bed, or by slipping a long ironing-board under him, and propping its end up on a chair-back or other pedestal. If the patient feels an impulse to

expel the water before a sufficient amount has been injected, he should make a strong effort to retain it, and an assistant should aid him by pressing a folded cloth against the anus until the impulse is controlled.

By far the most satisfactory attitude in which to irrigate the colon is known as the knee-chest position. Use no other, if possible to avoid it. The patient kneels upon the bed, table or floor, and keeping his hips high in the air, brings his head and chest down as low as possible, resting them upon a thin cushion, if desired. Persons in fairly good health may practice this enema kneeling upon a rug on the bathroom floor, conveniently close to the toilet.

This position is easily assumed by any normal person. It causes the cups of the bowel to fall towards the upper gut, thereby affording free entrance of the water to the upper colon. The water flows readily by gravity into the descending and transverse colon, and on reassuming an erect position, a portion of the water in the transverse will flow by gravity into the ascending colon, and to the cæcum. As a matter of fact, the water will be pushed into the ascending colon anyhow, if enough of it be used, through its faculty for seeking its level.

In the knee-chest position, from four to six pints of water may be injected safely and without inconvenience; though when an enema is being taken daily or oftener during illness, four pints will be enough, as

a rule. The filling of the colon is highly desirable, if it is to be thoroughly cleansed. This is what I shall hereafter refer to as high colon irrigation.

Do not under any circumstances use soapsuds, soda, salt or any other medium in the water with which you irrigate the colon. They are entirely unnecessary, and may even cause irritation or worse. Apply a little vaseline or olive oil to the ball of the hard rubber rectal tube, so that it may be inserted easily. First let a little of the water run out of the tube to expel the air in it, and also to bring it to the proper temperature.

If there is an impaction of fecal matter in the lower bowel when irrigation is attempted, this should be evacuated before proceeding with the higher irrigation. If there is a slight griping or nausea, or if the water comes too rapidly from the syringe, stop the flow for a moment with the clip cut-off or by pinching the tube between finger and thumb. As the water finds its way into the upper portions of the bowel, the uneasiness will be quieted. Remain in the crouching position for a few moments after receiving the full quantity of water.

Many persons take the colon irrigation with the water at about the temperature of the body—98 degrees. It is much preferable, however, to use cooler water—90 or 80 or even 70 degrees—for the same reasons that cold drinking water is much preferable. The condition of the patient will have not a little to

do with deciding the exact temperature. Warm enemas are enervating to the colon, and soon lose their effect because of this. The walls of the colon may become relaxed and stretched, especially if large quantities of water are used. Cold water is free from these objections, as it gives tone and life to the intestine by stimulating its muscles and nerves. In fever the cool enema is valuable not only for cleansing purposes, but for reducing the temperature and stimulating the kidneys, liver and skin to more eliminative action.

There are times, however, when the hot enema, given at 110 to 120 degrees, is of great value. It has a stimulating effect, somewhat similar to cold water, but it should not be used too often. A British army surgeon many decades ago used the hot enema while on the march to revive soldiers who had fallen out of the ranks, exhausted. It is useful in infantile diarrhea and in many female troubles, such as painful menstruation, uterine pains during parturition, and irregular contractions occurring just after childbirth. In prostatic inflammation, suppression of urine, renal inflammation, collapse, or low vitality, especially in fevers and contagious diseases where the life is threatened by absorption of the toxins of the infection, the hot enema is of great value.

The ascending and transverse colon is Nature's reservoir. In normal conditions, water will be found in these cavities as an almost constant factor. When

the stool reaches the descending colon, its water content will rarely amount to five per cent. But in the ascending and transverse colon, it is semi-fluid, and in the stomach and upper intestine, the contents are fluid. Therefore, the absorption of water in the ascending and transverse colon exceeds the absorption in other parts of the alimentary canal.

This rapid absorption of water in the colon renders the high colon irrigation strongly diuretic—that is, it increases the flow of urine. This is proven by the copious voiding of urine immediately after an enema. In this way the irrigation performs another great service in eliminating waste products and poisons generated in the blood by the secretion of disease.

Locally, on the kidneys, water acts by increasing the fluidity of the secretion. It washes the secretions through the ducts much more effectively, dissolving and neutralizing many of the irritating excretions in the urine.

It should be apparent that all acute and chronic inflammatory conditions of the kidneys are greatly benefited by the excess of water drained through these ducts. Also, in lessening the specific gravity of the flow, we increase the osmotic action and increase the draining of the blood. This relieves the local congestion and more effectively clears out the poisonous end-products in the blood.

In my later discussion of acute and chronic kidney troubles, I will describe this treatment more in detail,

but these general principles will meet with success in more than 60 per cent of these cases.

LAVAGE

One of the most important of hydrotherapic methods, especially in disorders of the digestive system, is lavage, or the washing out of the stomach. Properly done, it meets with much less objection than some people have raised against it.

Proper Way of Swallowing Tube for Stomach Lavage (left)

Improper Way of Swallowing Tube for Stomach Lavage (right)

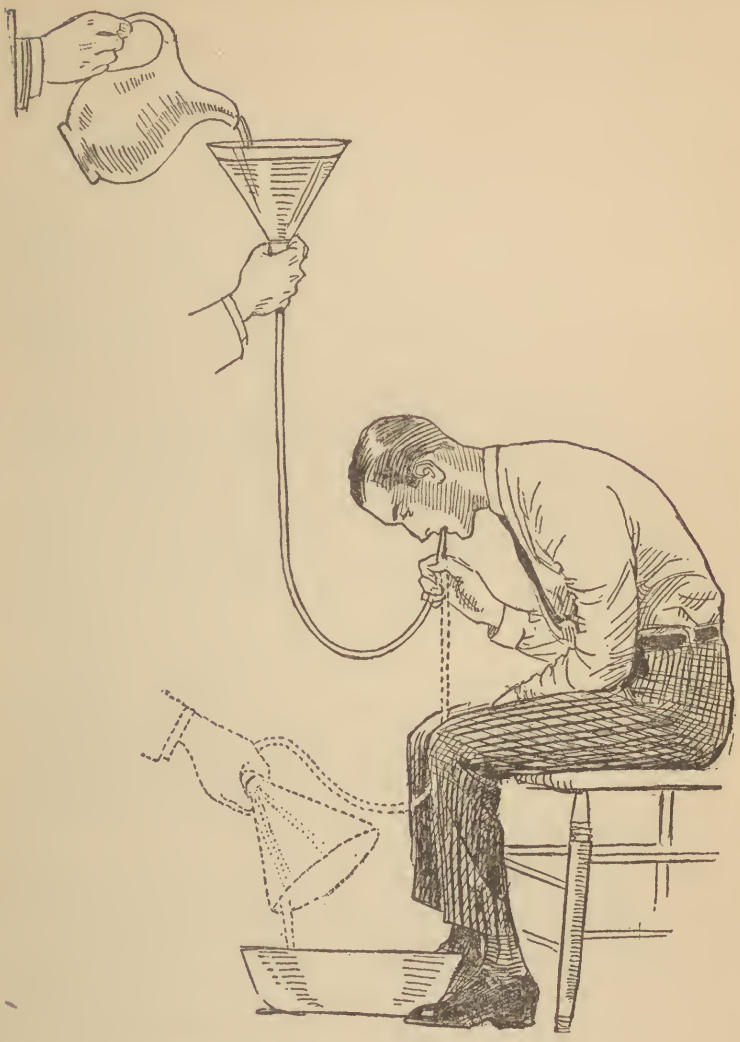
Doctors frequently make the mistake of insisting that the patient, during this operation, should sit bolt upright, with the head thrown back. Instead, he should sit on a chair, leaning slightly forward. An

empty basin is placed on a chair immediately in front of him. Fastened about his neck should be a heavy cloth, or preferably, a rubber sheet which covers the front of his body. If he has any artificial teeth, they should be removed.

The apparatus consists of a stomach tube—such as can be purchased at most drug stores—fitted with a funnel at one end; also a pitcher containing two quarts or more of tepid water. The doctor, attendant or patient himself dips the lower end of the tube in warm water, and holding it so that two or three inches of it project beyond the fingers, introduces it into the patient's open mouth—without touching the tongue—until it reaches the esophagus, when the patient swallows it. In the leaning forward position, the muscles of the esophagus will accommodate themselves much more readily to the tube than if the patient were sitting with head thrown back.

If the patient fears that the tube may choke him, let him remember that the pharynx will accommodate masses of food of much greater diameter than the tube. Be sure that the tube has not been inserted by mistake into the windpipe, though this is not apt to happen. It may gag the patient a little as it goes down, but the canal will quickly secrete mucous to lubricate it. If the mouth is kept open, no choking sensation will be felt.

A mark will be found on the tube which indicates approximately the length of it to be swallowed. The



Correct Method of Washing Out Stomach

patient or assistant now holds it lightly just outside the teeth, the funnel is elevated and water poured into it. If the patient vomits, he leans over the basin, and the vomit flows out around the tube, which he must *not* attempt to remove. If there is no vomiting, after about a pint of water has entered the stomach, the funnel, still containing water, is turned down into the basin, but not entirely emptied. The water which has just entered the stomach must be siphoned out, and siphonage will not begin unless there is water in the funnel.

After the water has run out, fresh water is poured into the stomach and siphoned out again, this being repeated until no mucous or other undesirable matter appears. Sometimes a gluey mucous or undigested food in the stomach may clog the action of the tube a little, in which case elevate the funnel slightly, to get more pressure. The tube may have to be removed and cleansed if there is food in the stomach or if its condition is very bad, but if lavage is done just before meal time, there is no likelihood of obstruction. When the water finally comes out clear, grasp the tube firmly and withdraw it.

Many patients become so accustomed to lavage that they can attend to it themselves, unaided. Its benefits, remote as well as local, are so many and so general that I strongly urge every one, sick or well, strong or weak, to become familiar with the practice.

DEATH FROM "APOPLEXY" FREQUENTLY DUE TO STOMACH DISORDER

More than ninety per cent of deaths from so-called heart disease and apoplexy are nothing but the manifestations of stomach troubles, which the prompt use of the stomach tube, with ample washing with bland water, would have immediately corrected.

There may be a few persons who are unable to accustom themselves to the use of the stomach tube; these should practice emesis, or the art of vomiting. Warm water, drunk freely and repeatedly vomited, is an efficient method of cleansing the stomach of fermenting and putrefying contents. The old adage, "An empty house is better than a bad tenant," should be the rule in all conditions of acute gastric distress. In the event of any marked distention or distress in the stomach, prompt evacuation and cleansing of the stomach should be secured.

The severe strain of vomiting, and the probability of throwing bile into the stomach cavity will be avoided if one can accustom oneself to the manipulation of the stomach tube. Every one approaching the age of fifty or over should practice gastric lavage so that he or she can use it without discomfort at any time. Its use in individual diseases will be considered in later chapters.

THE PHYSICAL ACTION OF WATER

The physical action of water is indirectly in proportion to its specific gravity in relation to the blood. In other words, the nearer water approaches to its chemical and physical purity—i.e., distilled water, or H_2O—the greater will be its osmotic action on the blood.

Again, water is a "dissatisfied" compound, having molecular affinity for mineral salts and vegetable acids. The suspension of these in sea-water illustrates this affinity. This fact of molecular affinity is of great therapeutic value, especially in rheumatic, gouty and pregnant conditions, for the drinking of distilled water in large quantities promotes the absorption and elimination of the lime and other salts. Its constant use is advised in all cases of hardening of the arteries, in that its affinity for the deposits of lime salts in the walls of the arteries promotes their elimination.

In most respects, alkaline and mineral waters are inferior in action to plain water, because their specific gravity is so much greater and their affinity for salines approaches more nearly the point of saturation. Therefore, as a general rule, the use of mineral waters is not advisable, except it be for some specific chemical object.

CHAPTER XIV

Diseases of the Alimentary Canal

The close relationship between all anatomical divisions of the alimentary canal, as well as the supplemental organs of digestion, the liver and the pancreatic gland, make it more or less inaccurate to speak of any disease as being exclusively confined to any particular division or location in the alimentary canal. With complete relaxation from functional activity, the alimentary canal is nothing but a tube, with gradually widening volume as it approaches its outlet, the rectum.

Under usual conditions, the stomach is dilated, and the pylorus, which is the opening into the intestine from the stomach, is constricted. Cunningham, the eminent anatomist, has demonstrated that with complete contraction of the stomach, this constriction, or pylorus, disappears, and the volume of the stomach approximates that of the esophagus, which is the tube from the mouth to the stomach. The stomach is really one of the narrowest portions of the alimentary canal. This fact is of the greatest importance in correcting abnormal conditions, not only locally in the

pylorus, but also in the small and large intestines, and in successfully correcting stomach and intestinal lesions.

The art of reducing the stomach to its fully contracted state is essential for the correction of stomach and intestinal lesions. While the technique of abdominal manipulation is extremely simple, yet it is almost never used by physicians or the laity. Before further consideration of this very frequent form of disease, it is imperative that some description be given of the technique of abdominal massage. Because of the fact that the abdominal contents, i.e., the peritoneum, omenta, stomach and intestines, are semi-fluid in their consistency, it must be borne in mind that pressure on any part of this cavity exerts to a very fair degree a general hydraulic pressure effect.

The structure of the abdominal cavity is rigid, and resists motion in approximately sixty per cent of its boundaries. The diaphragm above is firm, especially during inspiration, and admits of but little motion. The ribs above and posteriorly, the spinal column and the powerful spinal muscles, with their strong, broad ligaments, admit of but little motion in the posterior part. Below, the pelvis and pelvic floor offer firm resistance to motion. The front of the abdomen is the location of the omenta, or fatty apron which protects the stomach and intestines from injury, so that pressure on this part of the abdominal cavity is

fraught with less danger than in any other of the human economy.

HOW TO MANIPULATE THE ABDOMEN

Further, because of the erect position which the human animal assumes, all tension is downward, and because of the resistance being less in the front of the abdomen than otherwise, the displacement or tension is always to the front of the abdominal cavity. With these two facts in view, all manipulations must be given with the patient lying on his back, with knees flexed, and all pressure must be directed upward towards the diaphragm. Because of the hydraulic pressure, to a greater or less degree the manipulations are distributed throughout the entire abdominal cavity, more especially if we add to the rigidity of the front part of the abdomen by exerting our pressure with the entire palms of both hands. To stimulate the activity of the motor generating nerves in the walls of the stomach and intestine, a circulatory upward motion is advisable. Needless to say, the best results are obtained when the stomach is free from food, but the presence of food in the stomach does not preclude the use of abdominal massage.

With proficiency in the art of abdominal massage by the patient or by some one in the family, there will be very few cases which will require artificial support in the shape of a corset or abdominal band-

age. The patient will experience a noticeable sense of lightness with the contraction of the stomach, and in most cases this will be accompanied by the gurgling sound of the escape of the stomach contents into the intestine. With the complete contraction of the stomach, its location will be found extending from the fifth to the seventh ribs, slightly to the left of the median line, with a lateral measurement of approximately one inch.

The relief afforded the patient upon complete contraction of the stomach to its normal volume, accompanied, as it always is, by relaxation or disappearance of the pyloric constriction and evacuation of the stomach contents into the intestine, is emphatic demonstration of the fact that the distress experienced is almost entirely due to the defects of muscular action rather than to inflammatory changes in the lining membrane of the stomach.

HYPERACIDITY—SOUR, BURNING STOMACH

While this subdivision of stomach disorders is treated in the text-books as a separate disease, in reality it is but the manifestation of the majority of stomach lesions, and its correction is of the first importance from the standpoint of the patient's comfort.

Certain portions of the pylorus are extremely sensitive to acid or rather to acrid stomach contents. Any excess of acidity will cause contraction or spasm

of the circle of muscles which we call the pylorus. This will retard the discharge of the stomach contents into the intestine, and results in retaining the food in the stomach. This condition is usually the starting point of most stomach disorders. Therefore, it may be concluded that in treating for hyperacidity of the stomach, we are correcting the cause of two-thirds of all stomach troubles. The remaining one-third can be divided among malaria, injury and other remote causes. From the standpoint of the hydropath, the treatment should be designed to render the stomach contents bland, and to correct the disturbance in the muscular activity.

THE IDEAL STOMACH TREATMENT

The ideal treatment, therefore, in these cases is morning lavage of the stomach to render the contents bland, followed by copious drinking of cold water, to relieve all inflammatory and congested conditions by osmotic action. This should be followed by massage of the abdomen until complete contraction of the stomach has taken place and until the pyloric constriction has disappeared. Few cases of simple hyperacidity of the stomach will resist this form of treatment, unless the exciting cause continues to be supplied.

Condiments, such as pepper, mustard, spices or highly seasoned sauces, are extremely irritating to

the mucous lining of the stomach and promote pyloric spasm. The irritating sulphur compounds that smell so strongly in the onion, leek and garlic, as well as the acids of the horseradish, cucumber, white and red radishes and tomatoes will frequently have a condiment action similar to that of spices. Strawberries and pineapples and occasionally peaches will prove irritating to the mucous lining of the pylorus. In all cases of hyperacidity, care should be taken to avoid these foods. Seasoning with onion and garlic juice is a frequent cause of stomach disorder, and is a custom that cannot be too strongly condemned. Coffee is a narcotic, checking the activity of the nerves of the stomach and lessening the expulsive contractions, thus delaying the food in the stomach and prompting the continued secretion of hydrochloric acid.

It must be borne in mind that hydrochloric acid, whether it be secreted by the stomach glands or formed from the chlorides of the meal, is produced only when food is present in the stomach. Any continued action or any prolonged delay of the food in the stomach will result in an increased flow of hydrochloric acid. Therefore the object of treatment should be to increase the propulsion of food into the intestine. Walking is a splendid stimulant, and much of the relief that a walk gives after a hearty meal is due to the stimulation that the jar of walking affords to the muscular coats of the stomach.

ACUTE GASTRITIS

The art of easy vomiting should be acquired by all. We put all sorts of foreign substances into the stomach, with almost no discretion, and when Nature rebels, we should be able to throw this objectionable foreign matter from the stomach as readily as we are able to eat it. Therefore, at the first manifestation of nausea and heart or lung discomfort which often introduces acute gastric attacks, the stomach should be promptly emptied. Warm water should be drunk freely and vomited until the stomach contents are clean and bland. The pyloric spasm should also be corrected by massage. These are the cases where complete abstinence from food meets with splendid results. Therefore, for several days following an attack, all food should be of the mildest character.

CHRONIC GASTRITIS

Where acute gastritis ends and chronic gastritis begins requires the drawing of too fine a line to be of interest to the hydropath. Needless to say, with failure properly to cleanse the stomach and to afford it full opportunity to rest and recover, the vast majority of acute gastritis cases develop into chronic gastric catarrh. The treatment of this trouble is the same as that used for excess of acid. Whether the stomach contents show an excess or a deficient quan-

tity of free hydrochloric acid, the treatment by osmosis brings back a normal activity of all the glands. Where there is deficient secretion, it will be brought up to the normal; where there is an excess, it will be reduced to the normal.

The same restrictions in diet should be observed as in excessive acidity. In addition, foods that are mechanically irritating to the membranes of the stomach should be avoided. These include nuts, seeds of fruits, fried foods, tough or fibrous foods, bran, crusts and foods that have been treated by chemical preservative processes, such as prunes, dates, figs, raisins and various widely advertised preparations of oatmeal.

Much benefit will be obtained in these cases if, in addition to the cold water draught in the morning and the abdominal massage, the cold, wet pack be applied locally over the entire abdomen upon retiring.

DILATATION OF THE STOMACH

Dilatation of the stomach is merely a further step in the progress of the inflammatory conditions of this organ. The obstruction to the passage of food from the stomach into the intestine, caused by the constricted pylorus, and the resulting distention of the stomach cavity, together with subnormal activity of the longitudinal and oblique muscles of the body of

the stomach, result in actual distention of the walls of the stomach, known as gastric dilatation.

From the hydropath's standpoint, the gastric dilatation requires only a vigorous carrying out of the treatment employed in hyperacidity and simple gastric catarrhs. Up to this point of dilatation, recovery is prompt under this treatment. The majority of cases last from one to two weeks. However, when there is pronounced dilatation, the treatment must be continued much longer to secure permanent recovery.

GRAVE GASTRIC CONDITIONS

When the stomach becomes dilated and distended to the point where it must find space not afforded within the confines of the diaphragm, the ribs and the breastbone, it is forced downward and forward into the abdomen. When the stomach ligaments become so weakened that they fail to retain the stomach in its normal position, we have dilatation accompanied by displacement. This is what is termed "gastric ectasia."

These are the cases in which delay of the expulsion from the stomach is aggravated by actual twist or torsion of the pylorus. The use of the stomach tube must be insisted upon. The stomach should be washed out thoroughly, four hours after every meal. With food absent from the stomach, after four hours the necessity for lavage will be eliminated, except the

morning treatment. The same treatment is prescribed in these conditions as in the others, with increased vigor of the massage. It will often be found extremely difficult, even in the most experienced hands, to restore the stomach to its normal position and size.

There are advanced cases in which there is extreme emaciation and weakness, frequently accompanied by fissure and ulceration in the neighborhood of the pylorus and duodenum.

The pyloric portion of the stomach is the most strongly attached part of this organ, and resists downward protrusion more vigorously than the body of the stomach. The stomach is usually twisted in gastric ectasia, and as a result, duodenal ulcers, as well as pyloric ulcers, are frequent accompaniments to the trouble.

The advanced conditions of emaciation should be treated in bed; first, to insure better opportunity to maintain the stomach in its normal position, and second, to prevent overtaxing the power of recuperation. In advanced cases, massage should be practiced at least three times a day, continued for ten minutes and persisted in until the body of the stomach is contracted, and as far as possible returned to its normal position.

The massage of the stomach, in addition to restoring it to normal position and obliterating the constriction of the pylorus, has an extremely beneficial

effect in stimulating cellular activity, not only in the stomach itself but in all the abdominal organs, thus promoting the supporting tissues to improved development.

The patient should not only be taught the benefit of abdominal manipulation, but should be taught to practice it himself. He is best qualified to decide the point of tolerance of pressure, and there are no reasonable technical objections to moderate massage.

ACUTE GASTRIC ULCERS

These are extremely rare and are not so grave as most physicians believe. They are rarely recognized, except where occasionally there may be a discharge of blood. The presence of blood in the stool, however, will direct attention to this condition, which will also be recognized because there is a certain local point of tenderness. Pus in the stomach content will confirm the diagnosis.

A majority of stomach ulcers are the result of some injury or other. As a rule, the burning is intense and the pain is confined to one spot. Under the osmotic action of water, used as in the other troubles just described, together with complete rest for the stomach, recovery is prompt.

In acute gastric ulcer, with the patient in a fairly robust condition, all foods should be strictly prohibited for 72 hours. Water should be drunk persist-

ently at regular intervals during this time to promote continuous osmosis in the stomach. A 72-hour exposure of an infected membrane to the osmotic action of water will destroy the activity of any bacteria that have infected the tissues, while the partial withdrawal of blood for that period will obliterate any inflammatory change in and about the ulcer.

Where there is any dilatation or pyloric spasm, massage should be used, in spite of the pain, in order to relieve the constriction about the pylorus. In ulcers with persistent vomiting of blood, it is advisable to increase the coldness of the water by the addition of ice, and to supplement the draining of the blood by an extensive wet pack over the chest and abdomen. In such cases we obtain prompt, immediate and permanent relief by these hydropathic measures.

PYLORIC ULCERS

Acute pyloric ulcer is more frequent than gastric ulcer, but its treatment is the same, i.e., abstaining from food for 72 hours, meanwhile drinking copious draughts of water, supplemented by the local wet pack. The obliteration—that is, the complete relaxation—of the pylorus in these cases is absolutely essential to recovery, and the pylorus must be observed to be sure that it is being obliterated.

With relaxation of the pylorus accompanying complete contraction of the stomach, it can be readily

understood that the water that is drunk will pass freely from the stomach into the duodenum; therefore, the osmotic action of water on duodenal ulcer is identical with that of pyloric or gastric ulcers.

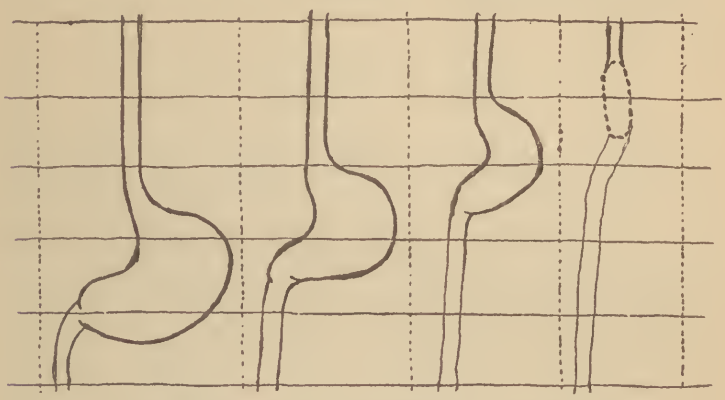


Diagram Showing Contraction of Stomach

These duodenal ulcers are indeed rare. In thirty years of observation of gastro-enteric cases, I have never been able to find any indication of duodenal ulcer in any of my autopsies, and have seen but one case that I was satisfied was primary duodenal ulcer. In this case, the occult blood in the stool and the local point of tenderness, together with the rigidity at the seat of the tenderness, substantiated my findings. A conservative estimate of the number of gastro-enteric cases of various kinds which I have studied and observed in thirty years will approximate 50,000.

However, the location of the acute ulcer is of sec-

ondary importance, for the 72-hour exposure to water will correct it, whether it is in the stomach, the pylorus or the duodenum. After this 72 hours of osmosis, the diet should be rapidly increased once more towards the normal.

SECONDARY, OR CHRONIC ULCER

To name this lesion correctly, it should be termed "mechanical ulcer." All displacements of the stomach, the results of acute force, or displacements through distention or downward pressure from the enlarged spleen of malaria, are really partial rotations upon the attachment at the pylorus. So that in all displaced conditions of the stomach, we have, to a greater or less degree, a torsion that involves not only the pylorus, but frequently the upper portion of the duodenum and the stomach itself.

It requires no stretch of the imagination to recognize that torsion will not only destroy the mucous lining of these parts, but by interfering with the circulation and nutrition, promote actual decay or ulceration. Therefore, this secondary ulcer is fairly common in acute displacement of the stomach and in most conditions of gastric ectasia, chronic ulcers of the pylorus and the pyloric portion of the duodenum.

Because of the fact that the primary cause of duodenal and pyloric ulcer is mechanical, our efforts should be mainly directed to correct this mechanical

defect. In other words, obliteration of the pylorus is absolutely essential to promote cure.

Many of the secondary ulcers of the pylorus and duodenum are accompanied by pronounced emaciation, which argues against complete abstinence from food. The specific gravity of a compound of half milk and half distilled water will approximate 1.008, while the specific gravity of the blood, in spite of its abundance of gases, will approximate 1.055. So that there is still a margin of osmotic pressure between milk-and-water on one side, and blood on the other. In these cases, the milk-and-water diet should be substituted for plain water. When the emaciation is very far advanced, the addition of moderate quantities of powdered sugar is sometimes desirable.

A two-weeks' treatment, one of which is usually spent in bed in grave cases, in my opinion has been sufficient to secure permanent recovery. At the end of the first week, the diet should return to normal or nearly so, but for months the patient should practice abdominal massage at frequent regular intervals, to insure proper muscular activity in the stomach wall.

GASTROPTOSIS (DISPLACEMENT OF THE STOMACH)

This condition is one of the most common among all stomach disorders. My experience proves it to exist as a primary lesion in fully 40 per cent of all

cases of stomach disorders, and as secondary to malaria enlargement of the spleen in at least 10 per cent of additional cases.

The stomach, as I have before stated, is located directly beneath the concave surface of the diaphragm, approximately between the fifth and seventh ribs, and is about an inch in diameter when completely contracted. Above it is the rigid diaphragm. Behind it are the rigid spine and ribs. In front of it are the rigid breastbone and ribs, but downwardly it has a flabby, fat support of the abdominal muscles and fatty tissues and gut. Thus, any pressure exerted upon the stomach, forcing it in the direction of least resistance, will displace it downward. A woman forcing open a tight window may easily throw her stomach out of place and become a victim of dyspeptic symptoms until she is fortunate enough to have her stomach restored to its normal position.

When the stomach becomes distended from food and gas, it cannot move up nor backward nor sidewise to find room; it must go down. When the spleen becomes enlarged in malaria or typhoid or some acute infection, it cannot press upward, as it is immediately below the diaphragm; it cannot press backward nor sidewise. It must press downward, and force the stomach and the splenic flexure of the colon down out of their positions, in order to make room for the enlargement.

The erect position assumed by human beings does

not afford the natural support which was formerly demanded, and which would still be given the organs if we walked on all fours.

The mere upward pressure afforded by stooping and placing the hands on the floor frequently will force the displaced stomach upward to its natural position. Also, the contraction of the abdominal muscle upon backward and sideward motion, to force the displaced stomach back in its normal position, helps materially. In this respect, calisthenics are very beneficial in this very common diseased condition of the stomach. On the other hand, constricting the waist with tight clothing, such as corsets and belts, aggravates the condition.

The treatment for these disorders is exactly the same as for hyperacidity. Thus, the massage of the abdomen should be carried out at more frequent intervals and for a longer period.

DISEASES OF THE GALL BLADDER

The opening of the gall bladder duct lies just below the pylorus in the upper part of the duodenum. Not only is this opening constricted in the case of spasm of the pylorus and torsion of the pylorus and duodenum, but it is frequently inflamed because of these disturbances.

In fully 70 per cent of all cases of displaced stomach, the gall bladder will be found distended and im-

pacted. With the stoppage of bile within the gall bladder, biliary gravel and gall stones are the frequent, in fact, the usual outcome. In other words, in fully 40 per cent of all stomach lesions there is to a greater or less extent, involvement of the gall bladder and development of gall stones.

The presence of an impacted gall bladder adds to the irritation of the pylorus and duodenum, and increases the spasm of the duodenum. Frequently, when acute, this pain and spasm will radiate downward along the duodenal canal towards the right groin. These are the cases that represent fully 90 per cent of so-called appendicitis.

OVER 1,000 CASES CURED BY EMPTYING GALL BLADDER

In private practice and in the clinic and in the hospital, I have had opportunity to examine and treat more than a thousand cases of supposed appendicitis, in which preparations were made for removal of the appendix. These cases were nothing but spasms of the duodenum, and were immediately relieved upon returning the stomach to its normal position, and emptying the gall bladder.

Contrary to the general opinion, expulsion of the gall stones is not, as a rule, a painful procedure. Gall stones the size of a pea are discharged through the gall duct in the stool without any interference or assistance, and patients frequently have been able to

remove small stones by their own efforts. The larger stones require the assistance of an expert manipulator.

However, the obliteration of the pylorus removes much of the tension and constriction about the gall duct, and the expulsion of the bile and gravel and small stones at the hands of the patient or his attendant can frequently be achieved with but moderate effort.

The technique of evacuating the gall bladder is similar to the technique of reducing the stomach to its complete contraction, which consists merely of contracting the stomach, and then maintaining rotary pressure over the gall bladder until the stones have been expelled into the gut. The discharge of each stone will give the patient immediate relief.

INTESTINAL DISORDERS

The strong disinfectant action of bile, as well as the rapidity with which the contents of the small intestine pass into the large gut, render the small intestine below the upper duodenum practically immune from disease.

PRIMARY ENTERITIS (INTESTINAL INFLAMMATION) EXTREMELY RARE

Personally, I have never seen a case of primary enteritis, either in children or in adults. A 24-hour

abstinence from food, however, with copious draughts of water and obliteration of the pylorus, will promote recovery.

The ulceration of the "Peyer's glands" in typhoid fever will be described under that disease, and requires no repetition here. This brings us down to the cæcum and the vermiform appendix.

APPENDICITIS

For thirty years I have been a close student of gastro-intestinal diseases. I have examined fully 50,000 abdomens; and throughout it all, I have never seen a primary case of appendicitis, and only one case of secondary appendicitis, accompanying a general involvement of miliary tuberculosis of the cæcum and ascending colon.

The appendix is a wizened, obsolete, useless little piece of gut, whose only function seems to be to shrivel up. Its circulation is minimum. It is encased in fat and protected by a strong, bony pelvis. It is subject to neither heat nor cold nor draughts nor push. The very point of alleged diagnosis—"McBurney's Point"—is usually four inches away from the actual location of the appendix, and is directly over the duodenum. The vomiting, the pain and every symptom of the so-called appendicitis, is typically characteristic of distress in and about the pylorus and duodenum.

I am convinced that in the vast majority of instances, other disorders are wrongly diagnosed as appendicitis.

CATARRHAL COLITIS

In the colon we approach the other opening of the long alimentary canal. Osmotic treatment is not remote here as it is in the small intestine. It must be remembered that, roughly speaking, the colon is in the shape of a horseshoe, with one toe in the right groin and the other in the left groin, and the arch extending upward about the abdomen.

In treating the colon by osmosis, we utilize the physical force of gravity. Thus, if we kneel, keeping the hips elevated, as in the "knee-chest position" for enema, described in Chapter XIII, we are able to obtain the direct contact of the water to the membranes of the entire colon, both ascending, descending and transverse. It must be borne in mind that the function of the lining membrane of the colon is to secrete very considerable quantities of mucous. Much of the elements of waste tissues are thus thrown into the stool. The excessive action of this membrane, as in catarrhal colitis, or its retarded action, is not only direct in its effects, but likewise has marked remote action. This brings us to

AUTOINTOXICATION .

It should readily be understood that mucous colitis, or in other words, an excessive secretion of the mucous membrane, will result in an increased discharge of waste material and active depletion of the tissues. Thus it will cause a marked exhaustive emaciation. On the other hand, a retardation of this secretion will not only result in dry stools, but in an incomplete discharge of the waste materials. Failing to be eliminated from the system, these waste or poisonous elements will bring about autointoxication or self-poisoning, manifesting itself in characteristic irritability, excitability, confusion, flushes, stupor, weakness and many other kindred conditions.

The failure to discharge the waste material will force other organs to assume the burden of throwing out excessive waste products. The results are a foul and offensive breath, a skin loaded with toxins, and frequently skin eruptions and a muddy complexion.

Where there is a subnormal secretion of this mucous membrane, the result will be an intermittent sloughing off of large segments of the mucous lining (this lesion is known as membranous colitis), accompanied by diarrhea and even by blood in the stools, with foul, decomposing excrementa. In such cases, numerous forms of bacteria can be found in the stools.

There is no organ in the entire anatomy that responds so readily and so satisfactorily to hydrother-

apy as the colon. Where the inflammatory condition of the colon results in excessive secretion or diminishing secretion, the osmotic action of water will promptly permit the recovery of normal activity.

During the early treatment of these conditions, the high colon irrigation should be practiced daily. Frequently, Nature will respond and expel the water within the bowel immediately upon its entrance. This should not discourage its use, for the water will not only wash out the bowel, but will render its contents bland, and a second attempt will be more successful.

Water in the transverse and ascending colon will frequently remain from six to eight hours before it gravitates into the ascending colon. Therefore a night and morning irrigation at the beginning of the disease will be sufficient to maintain the osmotic action of water in the entire colon. Two quarts of tepid, sterile water will generally prove sufficient. The patient should remain in the knee-chest position for several minutes, to insure the entrance of the water into the transverse colon.

The ideal way to cure colitis is to introduce two quarts of water into the transverse colon at night, permitting the water to escape from the descending colon, and then accompany this by drinking a glass of cold water. This will find its way into the colon before the injected water has escaped into the descending colon, and thus maintain the osmotic action.

Immediately upon waking, several glasses of water should be drunk. This ultimately, if not interfered with by the breakfast, will find its way into the ascending colon and maintain osmotic action. Osmotic treatment should be maintained for at least two weeks, with regular high colon irrigation.

DIET IN COLITIS

It must be understood that the food in the stomach and that in the small intestine is far more bland in content and in bacterial activity than is the food as it approaches the large colon.

In all inflammatory conditions, it should be the aim to render the colon content as bland as is possible. The ideal food for these conditions is the banana. This fruit is rich in an aromatic volatile oil. This in itself is strongly antiseptic and capable of checking putrefaction and fermenting decomposition in the stool. So efficient is this aromatic oil that it may be found irritating to the stomach content. However, much of this distress can be avoided by promoting the diastatic action of the starch in the banana by the addition of powdered sugar.

The banana in itself contains nearly every element of nourishment essential to human sustenance. During the first week of severe cases, it is my uniform rule to insist upon an exclusive banana diet. In specific colitis, such as amœbic dysentery, this fruit will

be found, after the first week, to be practically specific in its curative effect. The banana flour used in the West Indies, but unfortunately not introduced into use in the United States, is an ideal food for these conditions.

On the other hand, foods that offer fruitful fields for bacterial activity, such as milk, eggs and meat, should be avoided. Foods that are mechanically irritating to the membrane and the bowel should likewise be avoided. These are bran, seeds, pits, nuts and the peel of the apple, peach or pear. Starchy foods, however, are to be encouraged. Potatoes, turnips and bread should be eaten after the first week.

AMŒBIC DYSENTERY

The hydropath approaches this disease with great confidence, for he knows the strong power of the skin to assist in the excretion of all infections. In these cases, the moderately hot, dry pack should supplement the local treatment. The patient, both in the acute and chronic stages of this disease, is in an advanced condition of emaciation; therefore, the pack should be carried no longer than four to five hours, and should be repeated daily during the first week. Toleration of the high colon irrigation will be immensely improved after the dry, hot pack. The routine treatment should consist of the sweat in a warm room, followed by the enema.

In these cases, the banana diet will prove almost specific in its curative properties. Where it is possible to obtain it, the banana flour is superior to the actual fruit. Following the high colon irrigation, benefit will be obtained in this disorder by a local cold, wet pack over the abdomen. The colon irrigation should be supplemented with the large draught of cold water upon arising in the morning, and another in the evening. Rest is absolutely imperative during the first two weeks of treatment.

PREVENTIVE MEASURES

Finally, it must be remembered that the vast majority of diseases of the alimentary canal are easily preventable, and are brought on by our own criminal folly,—which embraces overeating, eating the wrong foods, overwork and lack of exercise. Nine people out of ten abuse and jeopardize the health of their digestive organs every day of their lives by too much food and too little exercise. People need to bring themselves to a much lighter, plainer diet, and to eat far less protein than is generally done. Only those engaged in vigorous manual labor can with safety eat much meat. Others should as a rule eat very little of it, and should also touch beans and nuts very lightly, for they, too are heavy with protein. Overwork and worry have their untoward effects upon the digestive organs, but even strenuous desk work may

be neutralized to some extent by plenty of exercise—outdoors by preference, though if that is not possible, some one of the systems of morning indoor calisthenics which work upon the trunk rather than the arms and legs. You need movements which stretch and bend and twist the trunk, and thereby massage and stimulate the vital organs within it.

A correct regimen in these matters will not only prevent diseases of the alimentary canal, but will ward off high blood pressure, Bright's disease, hardening of the arteries and kindred ailments, and will delay the approach of old age.

CHAPTER XV

Tuberculosis—The White Scourge

Tuberculosis is usually slow in its manifestation. Only too frequently these symptoms are remote from the time and place of the primary infection. The knowledge that the majority of folk are immune to tuberculosis has given people in general a feeling of safety from the disease. Therefore, very little apprehension is felt by most of us in exposing ourselves to contact with tuberculosis.

The tubercular germ is found more or less frequently in the air passages and air chambers of normal healthy lungs, without any manifestations, local or remote, of tubercular infection. It is a question whether this germ is an accompanying factor in the disease or a producing cause.

Clinically, it would seem that the lining membrane of the air passages and the air chambers, when in a fair degree of health, are able to resist the encroachment of the various bacteria found in those localities. This is true not only of tubercular germs, but also of the various pneumonia germs. The infection is merely secondary to some local or remote cause, other than the germs themselves.

MALARIA A FREQUENT CAUSE

I am convinced that *malarial degeneration of the blood is a very frequent underlying cause of tuberculosis.* In more than 30 per cent. of the cases of tuberculosis examined by me, the enlarged spleen and the decayed red cell, with occasional actual plasmodia of malaria, were present. The frequent development of tubercular manifestations following bronchitis and pneumonia would indicate, not only that the destruction of the membrances of the air passages and chambers by these diseases offered avenues of entrance for the tubercular germ, but also that the depleted vital powers rendered the resistance to the infection inadequate.

The remote development of pulmonary tuberculosis, following or accompanying a tubercular rectal abscess and fistula, is due not only to the transplantation of the tubercular infection, but likewise to the depleted vitality resulting from the abscess. The frequency of tubercular development, accompanying syphilitic infection, not only in the pulmonary system, but in the joints, glands and bones, is due to the depleted vital powers and the lessening of their ability to resist tubercular infection.

Therefore, it must be kept in mind that in a vast majority of cases—in fact, in practically all cases of pulmonary tuberculosis—there is an underlying depleting cause, which complicates the tubercular mani-

festations, and it should be our purpose to correct this underlying cause in our efforts to correct this grave and prevalent disease.

PHYSICAL VIGOR NECESSARY

With this in view, every effort must be exerted towards promoting physical vigor. All displaced organs in the abdomen and pelvis should be replaced in their normal position and stimulated through systematic massage.

As a routine practice in all pulmonary affections, the examination should include a thorough physical and laboratory examination of the abdominal organs and their contents. I know of no graver crime against humanity than the indiscriminate prescribing of medicine, such as creosote, duotal, guaiacol and other irritating drugs and compounds, whose only action is still further to break down the digestive functions of the stomach and liver. I have seen many patients whose opportunity to regain normal, healthy pulmonary conditions were denied them because of a liver diseased by creosote.

The cure of tuberculosis depends entirely upon a favorable hygienic environment, nutrition and rest. In a volume of this size it is impossible to discuss the relative value of altitude, air pressure, etc., beyond saying that while the underlying cause of tubercu-

losis is frequently benefited by changing altitude and environment, these factors should not be exaggerated, and the recovery of the patient made solely dependent upon the benefits obtained from the air and the rest, as is the system followed almost solely at Saranac.

Neither can I see the wisdom in the superabundant proteid diet. Milk and eggs have very little waste, and therefore excite very little activity on the part of the liver. I prescribe a general mixed diet in all my cases. A further argument against the milk and egg diet is the close relation between the circulation of the liver and that of the lungs, as is well recognized by all students of physiology. The sluggish habit of the liver induces engorgement of that organ, and directly, through the circulation, and reflexly, through the sympathetic nerve system, brings about engorgement of the lung.

The mechanical irritation and pressure caused by the cough in a very great many of these cases *result in a displacement of the stomach and a consequent torsion of the pylorus, interfering with the discharge of bile from the gall bladder.* This fact must be kept constantly in mind, and vigorous massage of the abdominal cavity should be practiced daily in most cases, to meet this exigency. While on the subject, I would urge the consideration of both barley sugar and maple sugar as important articles of diet in tu-

berculosis. Not only are these sugars extremely nutritious, but they contain an excess of the tannates, which are mildly stimulating to the activity of the liver and to the fluidity of the bile.

TREATMENT FOR TUBERCULOSIS

In tubercular conditions we have, as in malaria, a mild chill, usually in the afternoon, followed by a moderate rise in fever and this, in turn, by the cold sweat. After the sweat there is a period of relief, and in many cases, a sense of actual exhilaration.

The hot, dry pack with tubercular patients must be carried out with such moderation as will be tolerated by the patient. As a very general rule, the blood is subnormal in its organic state and functional activity, and the duration of the pack should be gauged by the actual vital powers of the patient.

In an acute miliary tubercular condition, I have in my practice maintained the pack as long as ten hours. But these were only in cases where the underlying conditions did not indicate that the use of the pack for that length of time would be inadvisable. As a rule, a three to five hour exposure to the hot, dry pack every second day will produce the best results. The rapid disappearance of the pulmonary symptoms after a five-hour exposure will be a source of astonishment to physicans, as well as to the patient. As a rule, all cough, congestive conditions and phys-

ical manifestation in the lungs will have become decidedly modified, even in tuberculosis of long standing.

The benefit may be apt to blind both the patient and the physician to the underlying condition that in reality in the producing cause of tuberculosis. It is fortunate that the treatment of malaria is largely identical with that of tuberculosis, and in eliminating the tubercular infection, we promote the elimination of its malarial complication. In those cases where malaria exists, the improvement will be gratifying. The benefits of gastric lavage and massage in these conditions is very marked, as a rule.

Complete daily cleansing of the stomach with a very mild salt solution, accompanied by vigorous massage and high colon irrigation upon retiring, not only promotes a healthy appetite in the morning, but enables the stomach and intestines to put forth their best efforts to digest and assimilate the food. I have seen cases gain fifteen to twenty pounds in weight, with vastly increased vigor, under this method.

In giving lavage in tuberculosis, my practice is to use about three quarts of water to effect a thorough cleansing, and to follow the lavage with a glass of cold water to promote omosis, relieving not only the stomach condition, but remotely the lung congestion.

After the high colon irrigation in the evening, the patient is placed in bed with a hot water bag to his feet and a moderate cold, wet pack over the chest.

He should sleep on the porch or in a well-ventilated room.

An ordinary mixed diet of meat, vegetables, cereals and breadstuffs is best for the patient; and remember that I am especially favorable to maple sugar, both in the cake and in syrup form.

The course of treatment necessary to promote recovery will rarely exceed six weeks. However, the hot, dry cabinet pack should be carried on for its prophylactic effect at semi-monthly intervals for at least a year, to insure protection against a return of the disease.

The occurrence of hemorrhage does not argue against the use of the hot pack. In fact, the very lessening of the blood supply and blood pressure in the lungs affords splendid means of relieving hemorrhage in the lungs.

In case tubercular abscess of the rectum develops, proper drainage should be secured, with a local wet pack over the affected region to promote osmosis and recovery.

In using the hot, dry cabinet pack, the patient must be allowed to breathe fresh, cool air. In the hot atmosphere of a room, the patient will rapidly become exhausted from the strain upon the heart and lungs, in his efforts to obtain a free supply of oxygen from the air.

CHAPTER XVI

Rheumatism

Pathologists and clinical experts are still at a loss to know whether urate of soda is the cause or the result of acute inflammatory joint rheumatism.

All urates are excreted by the kidneys. Therefore, when the kidneys fail to excrete the urates as they should, we find an excess of them deposited in the tissues and in the joints. Nature is kind enough to dilute these urates by an excessive secretion of the synovial fluid of the joints. Thus we find, as a general rule, that the affected joints are tense, swollen and red.

The hydropath must consider three factors in the correction of rheumatism:

(1) The source of the supply of the urates.
(2) The normal elimination.
(3) The supplemental elimination.

The source of the formation of urates is usually within the intestinal canal, and is due to infective material generated there. The failure by physicians to study more closely the relation between the intake and the output—the meals and the stools—has deprived us of much information as to the quantitative,

as well as the qualitative action of digestion and absorption.

The general belief among the laity and physicians as to the evils of meat and other proteids in rheumatic conditions is not well founded. For milk, which contains large quantities of readily assimilated proteid, is in fact the ideal diet for rheumatism. The evil results of rich proteid diet in rheumatism are remote, not direct. However, most physicians and laymen have an exaggerated idea as to the ease and completeness with which meat is digested. Only from five to fifteen per cent of boiled meat is affected by digestion. But meat has another fault in that it is very bland in the stomach and intestine, and promotes directly and reflexly very little organic activity.

Coarse vegetables, on the other hand, mechanically stimulate muscular and secretory activity of the organs of digestion, while at the same time their vegetable acids also promote functional activity. In this way, vegetables favor the elimination of the waste products of tissue change, and stimulate excretion and cause the removal of large quantities of inorganic and organic salts—these latter through the active flow of bile.

THE ACTION OF BILE

Bile not only is a prominent medium of elimination, but by reason of its strong alkalinity, checks fermen-

tation, and in this respect is a disinfectant, moderating putrefactive changes in the small and large intestines. Because of this action of encouraging the flow of bile, the preventive effect of raw vegetables and raw fruits in checking rheumatic conditions is clearly shown.

Before dismissing the question of proteids, I wish to say that the presence of animal coloring matter in the meat has little, if any, effect on digestibility. To differentiate between red and white meat is merely a matter of pigments, and has nothing whatsoever to do with dietetics. The structure and chemistry of white meat, or meat in which there is an absence of pigment, is practically identical with that of red meat.

In bringing about the cure of rheumatic conditions, the primary effort must be in the direction of eliminating the waste products through increased activity of the bile flow, and of moderating the fermentation or decomposition in the alimentary canal.

It must be borne in mind that there is a close relationship between the activity of the intestines and that of the gall bladder. While the activity of the intestines, as a rule, is reflexly stimulated by activity of the gall bladder, yet the reaction is equal. Therefore, activity of the intestines to some extent helps to evacuate the gall bladder, thus throwing off the waste products excreted by the liver, and promoting the checking of putrefying changes in the intestinal canal.

HOW COLONIC IRRIGATION ACTS

The action of the high colon irrigation, locally, promotes a cleansing of the large intestine, and reflexly prompts the expulsion of bile from the gall bladder into the intestine.

In rheumatism this high colon irrigation should be practiced with a fair degree of regularity. The night and morning use of the irrigation will, as a rule, be found sufficient. Again, the presence of the excess water in the blood, through its osmotic absorption in the ascending colon, not only liquifies the bile and washes out the poison, but it also stimulates the kidneys and the sweat glands to increased activity. This assists the elimination of the waste matter.

Furthermore, in a large percentage of cases, an actual retarding of bile from the gall bladder will be observed. In fact, it is characteristic with rheumatics that the stool is deficient in bile salts. In these cases, evacuation of the gall bladder and its stimulation to activity should be promoted by manipulation of the gall bladder. To the great discredit of the medical profession, this simple procedure has been permitted to become obsolete, although forty years ago, before the ultra-enthusiasm of surgical procedure obsessed the medical profession, massage or manipulative treatment of the gall bladder was a not uncommon method of relief.

HOW TO EMPTY THE GALL BLADDER

The technique of this method is simple. It consists merely in forcing the contents of the abdominal cavity upwards against the gall bladder with one hand, while with the other hand direct pressure is exerted just below the ribs, a little to the right of the median line. In many instances small stones will be expelled into the gut in this manner.

This simple procedure should be repeated, following lavage of the colon night and morning. The rapidity with which relief will be afforded by such measures is remarkable. Frequently, all symptoms of acute rheumatic infection will disappear within forty-eight hours.

The hourly drinking of distilled water constitutes a splendid adjunct to this treatment. The affinity of distilled water for vegetable acids and mineral salts promotes their absorption and elimination through the kidneys.

In cases where the results are not sufficiently prompt, a hot, dry pack—to assist in the elimination through the activity of the sweat glands—will prove very efficient in supplementing the other treatments. This pack should be maintained and the sweat prolonged for a minimum duration of five hours. Rarely will it be found necessary to repeat it; but if repeated, it should not last more than two or three hours, at the outside. The usual directions in the use of the

hot, dry pack require no modifications for the treatment of rheumatism.

It must be borne in mind that rheumatism is generally nothing but the abrupt manifestation of a chronic underlying condition. The aim of the hydropath is to remove the cause, not to mask the symptoms by the administration of salines or remedies such as the salicylates.

The patient should not retard or complicate the use of water in curing rheumatism by taking drugs, which will merely deter hydrotherapy from doing its work. When the pain is intense, use the hot dry pack. This will afford relief almost simultaneously with the appearance of the sweat.

THE DIET IN RHEUMATISM

The diet during and following an attack of rheumatism calls for special attention. It should be of a character calculated to promote an active flow and excretion of the bile. Certain fruits have a decided cholagogue action—that is, they increase the flow of bile. A compote composed of rhubarb, apples and oranges, cooked together and strained, then boiled again with the addition of sugar, has proved very efficient within my knowledge in increasing the discharge of bile.

Through their mechanical irritation, spinach, lettuce, beet-tops, knob celery, turnips, potatoes, raw

fruits (with the exception of the strawberry), bananas, apples, pears and cooked peaches have a beneficial influence in increasing the activity of the liver functions.

On the other hand, onions, garlic, strawberries, tomatoes, cucumbers and radishes, because of their intense irritating properties, are prone to excite a spasm about the pylorus, and thus close the opening of the bile duct into the intestine. The same is true of pepper and strong spices. I have seen a number of cases where the clinical history and subsequent developments prompted me to arrive at the conclusion that the specific cause of rheumatism was an irritation resulting from the pyloric spasm induced from the use of whiskey and onions. This spasm interfered with the opening of the gall-duct to the intestine.

The persistent and excessive use of coffee cannot be too strongly condemned. It conduces to rheumatism, not only through its action on the stomach nerve periphery, but also because of the way it retards the cellular, or secreting, activity of the liver.

DANGER OF HEART TROUBLE

The great danger, ever present in rheumatic conditions, of involving the lining and valves of the heart, is promptly relieved through the efficient hydropathic methods of elimination, in strong contrast with ordinary medical treatment. Rarely, indeed, will there

be any involvement of the heart where these therapeutic measures have been promptly and efficiently followed.

In chronic rheumatism, the functional activity of the liver must be vigorously maintained. For this reason, the diet should be largely, if not exclusively vegetable. Distilled water should be drunk freely every morning.

HOT TUB BATHS

Rheumatic conditions are greatly benefited by regular indulgence in a long, hot tub bath. The osmosis promoted by the water directly drains the blood of many of its unsatisfied compounds and mineral salts. As a rule, these baths should be taken immediately before bedtime, followed by rest in a warm bed, or by sleeping between blankets. The duration of the baths should be an hour or thereabouts.

The so-called mud baths have no value over the plain water bath. Their action depends solely upon water and rest. In fact, physically speaking, the benefit of the mud baths is decidedly inferior to that of the plain water bath, except in those local diseases in which some aluminum or radium in the mud affords a curative action upon a diseased skin.

Massage in chronic rheumatism is mildly efficient, in that its electrical stimulation promotes normal activity in the tissues, both local and remote. Also, by

its effect on the skin, it promotes more active secretion of the sweat glands.

THE EFFECT OF CLIMATE

The relief afforded by a dry climate as contrasted with the distress in a moist atmosphere is owing solely to the rapidity with which the sweat is stimulated and evaporated in the dry, hot air.

The hot-air cabinet treatment of chronic rheumatic conditions is also of great therapeutic value. Its regular use by elderly people should be encouraged. The duration of the exposure, however, should never exceed one hour, and the patient should always have access to cool, fresh air for breathing, thus avoiding the strain upon the heart and lungs of inhaling hot, light, dry air.

The observance of these rules in all cases of rheumatism will afford prompt relief from the acute symptoms and, if persisted in for a sufficient length of time, will bring about a thorough and effective cure.

CHAPTER XVII

Diabetes—The Insidious Menace

Diabetes is a manifestation of deranged metabolic (or tissue) activity. Anything that upsets the equilibrium between waste and repair may produce what we call diabetes.

One of the most common causes of this disease is obesity from alcoholic formation in the stomach, through yeast fermentation. Other causes are excessive acidity and stoppage of the passage of the stomach contents, induced by condiments, such as onion and garlic juice; deranged activity of the liver and pancreas, as well as interference with the flow of their secretions by an impacted gall-stone; worry, sorrow, fright and overwork.

DIABETES KNOWN AS THE JEWISH DISEASE

The prevalence of diabetes among orthodox Jews has excited much study of this subject. It is variously estimated that fully 80 per cent of orthodox Jews between the ages of 50 and 60, following the restricted Kosher diet, suffer more or less from diabetes. The question of nationality plays but a small part in the matter, as this proportion is found to be approxi-

mately the same among the Hungarian, Polish and Russian Jews. In the same family, where some members observe the strict Kosher law and others do not, diabetes is not present with the non-observers.

Excluding all other possible causes, my conviction is that the universal use of the garlic and onion juice in the Kosher diet is the exciting cause of diabetes. In a series of experiments in dieting these cases, I have been able to note a lessening in the glycosuria (sugar in the urine) when garlic and onion juice were avoided.

The draining out of the blood and the soaking of the meat in salt and water to extract the meat juices, as practiced by orthodox Jews, renders the meat almost tasteless. It is to overcome this lack of flavor that garlic and onions are employed. At the same time, the vital mineral salts that might be left in the meat are removed. This, of course, favors acidosis, which in turn, predisposes to diabetes.

My conviction is that the formation of alcohol and its remote developments are most frequently responsible for diabetic manifestations. Diabetes is so often associated with obesity that the merging of the latter into the former is gradual and insidious to the extent that they seem but different manifestations of the same producing cause. Clinically speaking, the self-same measures used for correcting obesity meet with success in correcting diabetes, as I have repeatedly shown, and have numerous records to prove.

THE YEAST CELL

The yeast cell is the constant re-infecting cause of obesity and diabetes. Each meal brings its new swarm of yeast cells, which generate alcohol in the stomach beyond the capacity of the red and white cells to meet its de-oxidizing effects.

Insofar as hydrotherapy can improve the functional vigor and the organic structure of the red and white cells of the blood, thus far it is efficient. Thus, through the high colon irrigation, by the efficient removal of the waste products, we stimulate more activity in both the red and white cells.

In diabetic conditions, the high colon irrigation, taken each night upon retiring, is one of the most important operations.

Yeast is inactive in a strong alkaline medium. Therefore, the bile should be encouraged to flow freely by evacuating the gall bladder and by abdominal massage. Yeasts are very active in an acid medium. Onion juice, garlic, coffee and spices increase the activity of the stomach, as well as the constriction of the pylorus. In this manner they promote the increased action of alcohol by delaying the expulsion of the fermenting mass into the intestine, where the fermentation would be normally checked by the bile.

In all diabetic conditions, as in obesity, the func-

tional activity of the red and white cell in the blood, is defective. The carbohydrates in the liver fail to pass to the glycogenic state (fat) and remain as foreign elements to be excreted by the kidneys. Thus the grave menace of obesity not only depletes the vital organs, but by depleting the glycogenic function of the liver, retards the conversion of glucose into glycogen, or fat.

Water has no destructive action on yeast. While it is true that mechanically we can diminish the amount of yeast in the stomach by copious lavage and can check the formation of alcohol somewhat by the elimination of carbohydrates in the diet, yet this is as far as the hydropath can go in correcting diabetes.

I have given this disease a great deal of study, and confess that I am compelled to resort to medication in order to destroy the yeast cells. I have combined physiological iodine to meet these indications in a highly efficient form, which is being presented under the name of "Neutroids." The results achieved by these tablets in diabetes have been extraordinarily satisfactory.

DIET IN DIABETES

No rule can be established that will meet all cases in this disease. Under acute stimulation of the liver and gall bladder, and through irrigation of the colon,

with the free use of the physiological iodine before meals, the restrictions in diet will be reduced to a minimum.

Upon the theory of the yeast origin of the trouble, condiments and coffee must be vigorously forbidden. If the patients thrive on a general mixed diet—and they usually do—there should not of necessity be any restriction in the use of carbohydrates.

LIVER MANIPULATION

Massage of the liver is a rather difficult procedure, requiring not only delicate skill but considerable strength properly to manipulate the inferior surface of this hepatic gland.

My method is to place both hands flat, one over the other, on the right ribs, and with the thumbs overlapped, so as to procure the greatest "purchase," press the thumbs into the abdomen, between the transverse colon and the rib border, and then slowly rotate the thumbs against the lower surface of the liver. I demonstrated this method in Boas's clinic in Berlin in 1893, and though endorsed by Dr. Boas, the amount of skill and strength required has prevented its being generally adopted.

In cirrhosis (hardening) of the liver, this massage, as described, is capable of producing exceptionally fine results. In sub-development of the liver, accompanying chlorosis (organic anæmia) and amenor-

rhea (stoppage of the normal menstrual flow) remarkable results are to be expected from it.

With diabetic gangrene, every means should be exhausted before operative measures are resorted to. The increased supply of glucose has apparently corrected a number of cases I have seen. Life has been prolonged materially by an excess of glucose, accompanied by the other measures I have outlined.

With the correction of colon decomposition and autointoxication by the high colon irrigation, the nervous and mental distress will be greatly relieved. The refreshing sleep that follows the enema is almost a direct antidote to the nervousness.

The milk diet, if accompanied by the high colon irrigation and supplemented by raw vegetables and fruits, deserves endorsement as an adjunct to the treatment of diabetes. In this diet, the yeast bacteria will be inert, as they are incapable of attacking the raw starches.

CHAPTER XVIII

Bright's Disease of the Kidneys

From the hydrotherapeutic standpoint, there is no such disease as primary nephritis. For the congestive and inflammatory changes in the kidney are dependent upon outside influence. The very function of the kidney is to react to outside influence, and to meet the demands upon it from these influences.

An increased tissue change prompts an increased excretion of urea (animal matter in the urine). Even fright and shock have an effect upon the kidneys. The excess of secretion accompanying or following a fright is generally recognized, even among the laity.

THE KIDNEY IS THE GOVERNING ORGAN OF THE CIRCULATION

A retardation in the draining of the blood by the kidney will increase arterial tension, while rapid draining of the blood through the kidney will diminish this tension. Therefore, the excess of action or diminished action of the kidney is remote in its effects, not only in a quantitative sense, but also in a qualitative sense, in that the throwing off of the products of tissue change is retarded, or is in excess.

Acute nephritis, in the majority of cases, is chemical in its origin. Carbolic acid, members of the benzol group—such as soda-benzoate, aspirin, antipyrine, etc., and bichloride of mercury, are decidedly irritating to the tubules of the kidney, and if taken in excess, not infrequently excite acute inflammation of the kidney.

THE KIDNEYS ARE BUT ONE AVENUE OF EXCRETING WASTE MATERIAL

It must be borne in mind that the main organ for the excretion of waste material from the system is the bowel. The kidney, the skin and the lungs are closely allied in their efforts to assist the bowel in this function of excretion.

To add to the irritation in the kidney by the use of a vegetable or metallic purge is bad medical judgment.

On the other hand, the high colon irrigation in the knee-chest position affords the best means of excreting the waste material, as well as the toxic gases. The absorption of water in the ascending colon will help dilute the urine and render it bland. Also, the presence of excess water in the excretion of the kidneys will promote an osmotic action in the tubules of the kidney, and relieve their congestion.

The close relationship between the functional activity of the liver and the production of toxins or

poisons in the blood is generally recognized. Therefore, it is absolutely essential that the gall bladder be called upon to excrete these poisons, in order to relieve the irritation in the kidney. Evacuation of the gall bladder by proper manipulation is indicated in all cases where the specific gravity of the urine will exceed 1.028.

SUB-ACUTE AND CHRONIC NEPHRITIS

The impression that Bright's Disease is generally or ultimately fatal is not without foundation. Yet, when we consider the kidney, in an anatomical as well as a functional aspect, it would appear that a rational consideration of these diseased organs would indicate that they should, under proper care, recover their normal health.

In the first place, we can absolutely regulate the quantity and quality of the urine; secondly, we can regulate the inflammatory progress of the kidney; thirdly, Nature, being generous in her protection of the kidney conditions, has given us twice the functional power necessary to maintain life, as is proven by the longevity of those unfortunates who have had one of their kidneys removed, and who thrive on the function of the remaining kidney.

Broadly speaking, there is no remedy that meets with such wonderful success in Bright's Disease of the kidney as the high colon irrigation of sterile water

and sugar. The presence of sugar in water has the effect of neutralizing the irritation that plain water would afford; while again, sugar in itself is readily absorbed, and is a splendid nutrient material when injected into the ascending colon.

The routine custom of throwing into the transverse colon every night, three pints of warm water, into which a teaspoonful of sugar has been dissolved, meets most of the indications in moderate forms of Bright's Disease. When dropsical manifestations have been marked, and where valvular lesions of the heart are present, the dry hot pack must supplement the colon irrigation.

DIGITALIS HARMFUL IN BRIGHT'S DISEASE

Apart from forcing a weakened heart to perform extra work, digitalis is excreted by the kidney. Not only is digitalis irritating to the kidney tissue, but it also has a peculiar action upon the involuntary muscular fibers found in the kidney.

The causes of chronic Bright's Disease are usually remote. The after effects of scarlet fever are a very common cause. Atrophic catarrh of the colon, and its failure to throw off the poisonous excrement that has persistently irritated the kidney cells, by compelling them to excrete this excess of toxins, is perhaps the most common of all causes for nephritis.

Where increased heart action is desired, and where

this is not secured through high colon irrigation or by the hot dry pack, stimulation should be produced by the use of ice over the apex of the heart.

The high colon irrigation, bringing about the osmotic action of water in the ascending and transverse colon, should be persisted in with regularity, long after the urine shows that all manifestation of degenerative or inflammatory changes in the kidneys have cleared up.

In giving the dry, hot pack in these cases, care should be taken to afford the patient contact with the open air. In this way, patients with even fairly advanced valvular conditions of the heart, will tolerate the pack for four or five hours, with but little discomfort.

A fairly strict attention to these measures has met with splendid success in the Günther Sanitarium.

Where the condition is advanced, the modified milk diet will stimulate the increased activity of the sweat glands. It will help also to render the urine bland. Two parts of milk to one part of water will meet most indications.

Where the patient is dropsical, the colon irrigation should be practiced twice in twenty-four hours. At the same time, a five-hour exposure to the hot dry pack every second day should be given, until the dropsical conditions have disappeared.

DIET IN KIDNEY DISEASE

With the first appearance of casts (hyaline or granular), narcotics, alkaloids, and coal-tar products should be interdicted. Smoking should be absolutely dispensed with, as well as the drinking of coffee. The diet should be light but nourishing. Meat, clabbered milk, a limited number of eggs, green vegetables of all kinds, and fresh fruit are valuable sources of food supply. Candies, pastry, fried foods, and an excess of starches should be avoided.

And, regularly and persistently, the patient should employ the high colonic irrigation on retiring.

Faithful adherence to these rules will cure ninety per cent of all the kidney lesions, and in less than a year restore a normal state of health.

CHAPTER XIX

Typhoid Fever

It is sometimes difficult for even the most efficient physician to recognize the early manifestations of typhoid fever. Our medical text-books print a long list of symptoms, ranging from nose-bleed to the characteristic eruption. Our laboratories emphasize the various reactions found in the blood and urine. Our pathologists differentiate various forms of the disease, ranging all the way from paratyphoid to malignant typhoid. All these may occasion discussion among allopaths and homeopaths; but from the standpoint of the hydropath, they need not be differentiated.

Typhoid is frequently so mild that beyond a pronounced sense of fatigue and a slight abdominal tenderness, with possibly some diarrhea, the patient experiences no distress. He continues to perform his daily tasks through the entire course of the disease. But more often he may manifest the gravest symptoms—prolonged delirium and coma, with prostration that momentarily approaches death, and a violent diarrhea, with stool loaded with pus and virulent bacteria.

Whenever a person experiences a sense of pro-

found fatigue and loss of appetite, with slight rise in temperature, typhoid fever should be suspected, and proper steps taken to meet the threatened disease.

Nature demands rest. From the earliest manifestations of the trouble, rest should be undisturbed. Plenty of air and as much sunshine as possible should be provided. Rest from food is likewise demanded. From the very beginning of the infection until the ulceration in the intestines has been healed, no food should be offered to the patient.

Nature also demands rest for the intestines during the early stages of the disease. Therefore, the high colon irrigation, to eliminate all irritating substances from the bowel, should be administered daily at this period of the infection.

Typhoid fever infection is eliminated from the Peyer's glands, which are located in and about the cæcum or lower part of the small intestine, and their junction with the large bowel. These glands become inflamed and ulcerate, and it is desirable to afford efficient drainage and moderation of the inflammation in them.

MASSAGE

Gentle massage over the upper abdomen enables us to secure two very efficient measures that assist Nature. First, by contracting the stomach, we relax the pyloric constriction, or opening from the stomach

into the small intestine. This affords prompt entrance of water into these intestines.

Here the osmotic action of the water lessens congestion and inflammation of the Peyer's glands. It also dilutes and washes out the suppurating excretions. Again, the contracted stomach with relaxed pylorus favors a more ready discharge of the bile into the intestinal contents. Bile is an efficient natural disinfectant, and aids in checking the suppuration of these glands as it bathes their surfaces.

Water should be drunk very freely during all stages of typhoid fever, a glass every two hours. Vomiting should be no signal for its disuse, for the vomiting of water is merely a cleansing of the stomach. Its action is benign. With these measures begun early in typhoid fever, the disease will always be mild, and run a course free from danger.

WHEN THE DIAGNOSIS IS MADE LATE IN THE DISEASE

Not infrequently the diagnosis is made late in this disease, and demands more active measures. In these cases, the cold wet pack meets the indications.

It is not my intention to condemn other uses of water as practiced in the hospitals, but I must condemn the brutal and unscientific method of dipping a typhoid fever patient in a full cold tub bath in order to reduce the temperature. Apart from the discomfort and danger of the effort and shock, the

efficiency of the tub is so very inferior to the cold, wet pack that I am convinced that the cold tub should never be practiced in any febrile condition.

Remember the cold tub affords no osmotic action. It does not promote sweating. When reduction in temperature occurs following its use, it is but the result of the shock and depletion of vitality. On the other hand, the cold pack promotes active osmosis of the skin, and through the vapor generated in the absorption of the heat from the blood by the water, excites active sweating.

The wet pack should cover the entire front of the trunk. A hand towel, dipped in cool water, spread over the abdomen and chest and covered with a bath towel, with the bedclothes covering both, will prove a very satisfactory and efficient cold, wet pack.

In severe cases, the pack should be changed every hour, but as the symptoms moderate, the interval can be lengthened. Quite frequently, a five-minute exposure to this pack will bring about a normal temperature, and within an hour delirium will have disappeared.

THE DURATION OF TYPHOID

Typhoid fever treated by these methods should rarely last more than three weeks. Frequently, two weeks will see the end of all manifestations. The liver and spleen are practically normal through the

disease, and no after-effects are observed. During my thirty years of practice, I never lost a case of typhoid. Any physician or any intelligent layman who will follow the simple rules here laid down, can have equally good results.

I rarely visited a typhoid patient as often as six times during the course of the attack, and then only to see that my directions were followed. None of my cases were burdened with trained nurses, and I had no serious consultations with other physicians. Typhoid is one of the first of all diseases in which allopathic physicians adopted hydrotherapeutic methods of treatment, and some of the greatest doctors in the profession declare that it is indispensable.

There is one custom regularly followed by me, and I give it as a precaution. To a very mild extent the skin is called upon to eliminate typhoid fever. This is manifested by the slight eruption. It is prudent, therefore, before allowing the patient to leave the bed, to give him a hot dry pack to sweat out any possible dregs of the disease.

In 1911, during the epidemic of typhoid fever at Long Beach, I had twenty-eight cases down with this disease at the same time. These patients progressed splendidly, with no delirium, reclining on cots on the open porches in the sea air, and drinking copiously of water. The moisture of the sea air, acting like a wet pack, kept the temperature down to about 100° Fahr. throughout the entire course of all

these cases. The longest duration of any case was three weeks, which contrasted strongly with the long duration and numerous deaths among cases removed to the hospitals.

The taking of food should be resumed gradually after the first week, and by the third week, moderately normal meals may be eaten. However, during the first week little, if any, food should be taken into the stomach. My favorite in these cases is ice cream, and that only upon request for food. During the first week the desire for food is but mild, and should the appetite become marked after the second or third day, the strong probability is that the patient has not typhoid fever. However, the steps followed that far are indicated in all acute infections of the digestive canal, and will accomplish the object of the treatment, i.e., correct the disease, even though it be not typhoid fever.

CHAPTER XX

Malaria and Its Manifestations

I am willing to declare with all confidence that in prevalence, malaria exceeds all other diseases combined. I am convinced, from a close observation of the spleens and the bloods of all classes of cases, that malaria in a more or less severe form exists in more than fifteen per cent of our population in the Eastern states.

For one year I alternated regularly between Wilson's and Swoboda's laboratories. Every case that entered the clinic was subjected to the blood test for malarial findings. The percentage of malarial manifestations was uniformly high.

I am willing to go even further, and assert that there is no disease so persistently ignored by the medical profession as malaria.

The introduction of the numerous coal-tar preparations and their general use in camouflaging the pain, headache and malaise of malaria by the paralyzing effects of these poisonous drugs, obscures the possibility of the condition being recognized as malarious.

In the clinic we treated only chronic conditions, yet a large proportion of every variety of complaints, ranging from alleged locomotor ataxia to suppu-

rative appendicitis, proved to be nothing but some manifestation of malaria.

MALARIA TREATED AS APPENDICITIS

A recent case is vivid in my memory, which illustrates how completely this disease may be misinterpreted, even by competent medical men. A certain physician was attacked by a severe chill while at his work. This was followed by intense headache and vomiting. The doctor was hurried home. Within an hour his fever was 103½° Fahr. A local physician, solely on the symptom of vomiting, diagnosed the case as appendicitis. Because of the fever, he also diagnosed it as abscess of the appendix.

A hurried consultation of three eminent surgeons followed. The diagnosis was confirmed, and the doctor was given the alternative of immediate operation or death within six hours.

While waiting for the operation, the sweating period of the malaria arrived. With the breaking out of the profuse sweat, all symptoms disappeared, to the intense gratification of the patient and to the astonishment of the physicians. I may add that within two days the doctor was attending to his practice as usual, and that he still retains his appendix.

This man had enlarged spleen and tertian plasmodia in the blood, which confirm the diagnosis of malaria. In the East and South, a safe and prudent

rule for physicians to follow would be to satisfy themselves in every instance that the patient is absolutely free from malaria before attempting to classify the disease under any other symptomology. In other words, unless actual diagnosis shows a patient to be thoroughly free from malaria, it is always in order to suspect that a malarious condition may be latent or lurking in the background, and to administer treatment accordingly.

I myself have been the victim of a deviation from this rule. One evening, a year or more ago, I was seized with a chill, accompanied by intense pain at the base of the bladder. At the hands of six of my colleagues, I was treated for everything, ranging from prostatic abscess to stone in the kidneys; also tuberculosis of the bladder, amœbic dysentery and chronic appendicitis with septicemia. No one even suspected malaria. I suffered without relief until at the suggestion of Dr. Swoboda, my chemist, I submitted to a blood test for malaria. His report was "Tertian malaria in abundance."

With the proper hydrotherapeutic treatment, combined with the indicated quinine dosage, I made a rapid and uninterrupted recovery, and have been free from the disease ever since.

MALARIA COMPLICATES OTHER DISEASES

Not only is this diagnosis of malaria usually overlooked, but our knowledge of pathology is so vague

that we are at a loss to grasp its importance. For instance, my observations would indicate that malaria is an important factor in forty per cent of the cases of lobar pneumonia, fifty per cent of the cases of tuberculosis of the lungs, fifty per cent of the syphilis cases, and thirty per cent of all gastro-enteric diseases, not even excluding typhoid fever or amœbic dysentery. Also, it is a very grave question whether or not malaria may not be the remote cause—by its depleting and depressing effect—of all or many of these illnesses.

It is certain that the emaciation from malaria depletes the power of oxidization and resistance to infection. Malaria is purely a blood disease in its direct attack, and is most destructive to the oxygen-carrying organ, i.e., the red cell of the blood. Unlike any other disease, one attack does not promote immunity, but rather lessens resistance to the re-infection from the same disease.

THE MALARIA GERM, AND HOW TO OVERCOME IT

The germ of malaria is a true protozoa or fungus, which finds lodgment in the red cell of the blood and draws its nourishment from this cell. Because of the protection which this cell affords this fungus, or plasmodium, it is practically impossible to eradicate it from the system, as long as it is adherent to the red cell.

So only when it periodically leaves the cell and enters the serum of the blood, where it propagates, can it be eliminated. Again, because of the probability that these plasmodia may not all leave their attachment to the red cells at the same period, complete elimination can rarely be obtained with one exposure to the dry, hot pack.

Nature's indications in all forms of malaria are very plain. The chill indicates an internal congestion of the lungs, the liver, the spleen and the digestive tract. This is due to the strenuous endeavors of the system to throw off the virulent toxins developed by the attack. The frequent accompanying exudations from the lungs at the outset, the vomiting and purging so often present at the early stages of the trouble, as well as the jaundiced condition, are but manifestations of Nature's efforts to eliminate the infection. The relief obtained from vomiting and purging will frequently abort and modify the duration of a paroxysm.

The inflammatory process excited in the lungs in this disease will often produce or simulate actual lobar pneumonia. It is my sincere opinion that most of the acute inflammatory conditions in the liver are malarial in their origin. In this respect, all forms of malaria seem to be identical in their effects. The inability of the vital organs to respond to the demands brings on an increased oxygenation of the blood, or

fever. When this fails to eliminate the infection, Nature calls on the sweat glands. *The relief given by the sweat is in direct proportion to the duration and extent of the sweat.*

RELIEF BY SWEATING

After a prolonged and profuse sweat, aside from the exhaustion resulting from the attack, relief is generally afforded from all symptoms of the disease. I am convinced that many of the so-called chills or colds that have been cured by a good sweat were, in reality, infections of malaria. More frequently than is generally imagined, the primary infection of malaria is completely eliminated by the sweat.

To use the hot, dry pack indiscriminately in malaria will not give the results that can be obtained when the plasmodium of malaria is detached from the red cell, and in the free circulation of the serum of the blood. The proper time to use the hot, dry pack is during the acute manifestations of the disease, or at the time of the chill, fever and sweat. In chronic malaria, the chill, fever and sweat are often not sufficiently pronounced to be recognized. However, the decided sense of weariness and exhaustion should be the guide for our use of the hot, dry pack.

Usually the plasmodia will not be found in the blood after a ten-hour exposure to the hot, dry pack.

Nevertheless, it is advisable to subject a malarial patient to at least three exposures to this pack. In all acute conditions, the initial treatment of malaria should consist of the high colon irrigation, together with abundant drinking of cool water.

THE DIET IN MALARIA

The diet of malarial patients requires special attention. Malaria is a disease of the blood in which the red cell has been destroyed and the oxidizing powers depleted. It is the one disease above all others that is particularly benefited by the use of milk. Contrary to the general conception, milk is digested and assimilated far better when it is diluted. Two parts of milk to one part of water more nearly approach the relative content of the blood. This may astonish some people, but when one appreciates that approximately 60 per cent of the blood content within the blood vessels is gaseous, and is liberated upon exposure to the air, the logic of my statement becomes more apparent.

Emulsified fats are usually too easily saponified; therefore, the addition to milk of a normal mild akkaline, such as a teaspoonful of milk of magnesia or a little lime water, with the water, will materially preserve the emulsification of the cow's milk. Saponified fats escape absorption by the little hair-like villi in the small intestine. A pint of water and a small

half teaspoonful of table salt added to a quart of milk will materially add to the nourishment of cow's milk.

VALUE OF THE MILK DIET

The milk diet, with the addition of salt and water, as I have described, has my recommendation. The improvement in the character of the red cell, as well as the increased abundance of hemoglobin, testify to this fact.

The saps of trees and sturdy plants have the peculiar quality of nourishing the red cell and increasing its activity. This is undoubtedly the reason for the great benefit resulting from the use of quinine. Bitter aloes is strongly beneficial as a blood food. Rhubarb, the juice of berries, the pulp of the banana, are also efficient blood foods.

My clinical experience in treating some 20,000 cases of malaria prompts me to conclude that the examination of the blood should not be the sole guide in arriving at a conclusion that malaria has been eradicated from the system. The capacity of the spleen to retain practically inert these plasmodia germs is well recognized. Therefore, any hypertrophy or enlargement of the spleen should be the signal for the renewal of the hot, dry pack.

CONSTIPATION OF MALARIAL ORIGIN

Sometimes constipation will alternate with excessive mucous diarrhea. Dyspeptic symptoms complicating these conditions defy all efforts at correction until the malaria has been eliminated from the system and the spleen returned to normal size. My experience convinces me that thirty per cent of gastro-enteric diseases are of the nature just described; also, that fully fifty per cent of neuralgias are malarious in their origin; headaches with marked gastric disturbances, commonly termed "bilious" attacks, are usually paroxysms of malaria. Lumbago, muscular rheumatism, sciatic rheumatism, periodic exhaustion, pallor or cachexia, "growing pains," emaciation, etc., etc., etc., are in ninety-five per cent of cases, nothing other than malaria manifestations.

All these cases will be greatly benefited by the regular high colon irrigation and the repeated dry, hot pack.

MALARIA AND OBESITY

The incapacity of the blood properly to oxidize the food in cases of unrecognized malaria in young children frequently results in obesity and chlorosis. The benefit obtained by sweating obese cases is often the result of the elimination of the plasmodia.

It must be kept in mind that in using the hot, dry pack in all conditions, whether malarial or otherwise,

the hot room such as is found in a Turkish bath should not be used. This is because the air is too rarified, and imposes too much strain upon the respiratory organs in their efforts to obtain sufficient oxygen. A patient should easily tolerate a ten-hour exposure in the cabinet bath, where he can breathe fresh outside air, but will often become exhausted in from one-half hour to an hour in the hot room of a Turkish bath.

CHAPTER XXI

Colds, Bronchitis and Pneumonia

Even many of our allopathic friends are now admitting that hydropathic methods are of more value in the correction of what are called "colds" than drugs.

Colds and their allied afflictions are the commonest of all acute disorders of the human machine. A recent writer has estimated that if the adult wage-earner loses only two days per year from his work (probably a modest estimate) the total loss in wages in this country will reach at least $60,000,000. He also estimates that $20,000,000 more are spent on patent medicines and physicians' prescriptions, bringing the total American economic loss up to $80,000,000. And yet nine hundred and ninety-nine people out of a thousand casually regard colds as something inevitable—like rain and sunshine—and never do anything by way of preventive measures.

Just why people have never learned to regard colds with any degree of seriousness is hard to understand. When neglected, or when they attack a person of fragile constitution, of unwise habits of life or of a sensitive respiratory tract, they may be but the beginning of same far more serious chronic trouble of the nose or throat.

Probably no disorder of the human body was ever so wrongly named as the cold. In about 90 per cent of the cases low temperature has little or nothing to do with the trouble. I have already pointed out that not a few supposed colds are in reality manifestations of malaria. Others are germ infections, caught by contact with or proximity to a person suffering with the disease. The individual with a cold who sneezes in a public place and does not mask the sneeze with his handkerchief, scatters a shower of germs all over the neighborhood. Attending public gatherings where other people have colds or where the ventilation is not good brings about a rapid spread of the disease.

This brings us to perhaps the next most common cause of colds—the habit of living and working in badly ventilated, overheated rooms. Exposure to the cold winter air never caused one-tenth as many colds as exposure to the foul, stuffy, germ-laden, dry air of an unventilated sleeping-room or living room. Do not take this as a suggestion that you expose yourself to draughts. In spite of the bravado of some over-enthusiastic physical culturists, cold draughts blowing directly upon human bodies cause many colds. Ventilation can be had without that.

Those persons who overeat, who eat too much protein (meat, beans, peas, nuts), whose diet is too rich and highly seasoned with condiments, who use alcohol or tobacco, who suffer from constipation or from a

more or less constant acidity of the system, are among the easiest victims of the cold. These are the sort of folk who are predestined to have one or more colds every year—nearly all of which might be avoided by correct habits of living.

Hot air furnaces and steam heat are responsible for many colds. Rooms are overheated, and this super-heat is so arid that it dries up the mucous membrane of the nasal passages, and renders it liable to all sorts of infection. Sixty-eight degrees is a high enough temperature for living apartments, and 65° would be better. When the temperature rises above 70 the skin perspires (perhaps unknown to you), thus evaporating the body moisture and causing a feeling of chilliness, which is conducive to colds.

Wet feet are a very common cause of colds, especially in women. The nerves of the soles of the feet are reflexly connected with the mucous membranes of the whole breathing system, which in many persons are extremely sensitive. Exposure of certain portions of the body by improper clothing is another frequent cause. The sedentary life, fear, worry, sorrow, all render one more vulnerable to the attacks of colds.

TREATMENT OF COLDS

One of the most important things to be done when a cold comes on is to eat very little solid food, but to drink plenty of liquids. Water may not be very

palatable, but it should be drunk, and quantities of hot lemonade will be accepted very gratefully by the patient and will prove valuable as a promoter of perspiration, which is very necessary. By all means, avoid meat, eggs, milk, beans, peas, cheese and nuts and eat mostly juicy fruits.

One of the first things to be done is to empty the bowels by means of the high colon irrigation. With the light liquid diet suggested, the irrigation will be necessary only once a day.

The patient should be exposed to the hot, dry pack at least three hours. Fresh air should be abundant in the room during this time. If there is much headache, cold compresses may be placed on the head, even during the sweat.

If the cold seems settled in the chest, the cold, wet pack kept on the chest for a few hours will loosen it up and give great relief. Be sure to rub the skin well with cold water as directed above, after ceasing the cold wet pack.

If there is sore throat, wring a piece of flannel out of ice water, not too dry, and wrap it snugly around the neck, covering it with oiled silk or some other waterproof material, if possible, and let it stay on all night. If no waterproof material is available, cover the compress thickly with heavy, dry cloth, fastened securely in position with safety pins. This is excellent for pharyngitis, tonsilitis, etc. When the pack is taken off in the morning, rub the skin of the

neck thoroughly with ice water and a rough towel, and dry carefully. Very sensitive persons might do well to have a handkerchief tied around the neck during the day.

As colds, influenza, la grippe, etc., are all but slight variations of the same disease, they need not be differentiated from a hydropathic standpoint, and much the same treatment will take care of all of them. I have frequently found it necessary to give only one colon irrigation in influenza, and have stopped most cases of Spanish influenza in thirty-six hours.

BRONCHITIS AND PNEUMONIA

The differentiation between pneumonia and bronchitis, with the appellation of pulmonary pneumonia, broncho-pneumonia and pleuro-pneumonia, merits no consideration by the hydropath, for the same cause will excite any or all of these conditions.

Thirty years' active practice with frequent epidemics of grippe and pneumonia speaks emphatically for the superiority of water treatment in pneumonia.

Whenever a patient has a profound chill, accompanied by marked exhaustion and a dry racking cough, the danger sign of lobar pneumonia is prominent and the earlier the treatment is given, the milder will be the disease.

Therefore, the use of water is not only curative of actual conditions, but is preventative of probable de-

velopments. The chill is significant of congestion of the lungs, liver and stomach. It must be borne in mind that the stomach blood-vessels are already engorged and require no reflex stimulation from the drinking of cold water.

HOT COLON IRRIGATIONS IN PNEUMONIA

During the chill of pneumonia, the colon irrigation should be as hot as will be tolerated by the colon; this should also be true of the water drunk. In addition, the hot dry pack should be used to produce congestion of the skin, to drain the blood from the organs.

The benefit of copious drinking of hot water during the early stage of pneumonia cannot be exaggerated. If it produces vomiting, the stomach is cleansed, which should be encouraged until the stomach is able to retain with comfort at least a half pint of hot water.

There is close relation between the blood-vessels of the stomach and those of the lungs and liver. Consequently the osmosis that takes place in the stomach not only drains off the congestion of the stomach itself, but the liver and lungs as well.

The ingestion of hot water should continue during the chill, but when the fever succeeds the initial chill, the drinking of cold water is indicated.

With the correction of the chill and the appearance

of fever, additional osmosis must be encouraged by the cold wet pack.

Rarely is it necessary to use the general wet pack, as the exposure of the wet pack to the chest and abdomen will prove efficient.

DIFFERENCE BETWEEN PNEUMONIA AND TYPHOID TREATMENT

In pneumonia the condition is different from that of typhoid. In the latter the onset of the disease is slow and gradual, and the shock manifests itself only in the sense of general fatigue, whereas in pneumonia the onset is abrupt and intense, with brave shock, frequently accompanied by prostration. So it is very evident that the dietary indications are diametrically opposed. Therefore, with the cessation of the cough, a craving for food is usually manifested.

Pneumonia is a disease that demands nourishing food. I recommend strongly well-boiled and strained oatmeal gruel. Oatmeal furnishes a very substantial proportion of proteids. With thorough boiling the wall of the starch cell is destroyed. The addition of sugar to the gruel promotes the rapid conversion of the granulose of the starch into maltose in the stomach.

The rapidity with which nitrogenous foods supply a stimulation by oxygenation, in contrast with the carbohydrates, indicates their use in pneumonia, with

the exception of eggs, which, because of the quantity of lime salts they contain, encourage the calcification of tubercular infections. On the other hand, meats, blood-juices, milk, ice-cream, well boiled fish and meat jellies afford excellent nourishment.

In inflammatory changes in the lungs, not only is the shock of the onset of the disease prostrating, but in the extreme effort of Nature to force sufficient air in the lungs during the active processes of the infection, the vital forces become exhausted, and it is necessary that Nature be afforded opportunity by rest to return to normal vigor.

It matters little whether the condition be one of simple bronchial affection or actual pneumonia, the treatment in both is identical.

CHAPTER XXII

Diseases of Children

When we undertake to promote recovery by Nature's methods, the finer points of diagnosis and their differentiation play a much less important rôle that when we are attempting to correct disorders by means of drugs.

There is a marked difference between homeopathy and hydrotherapy, although at first glance their logic might appear to be identical or at least similar. But homeopathy, on the assumption that "similia similibus curantur"—like cures like—attempts to create a condition similar to that which Nature has created—an entirely new cause and an entirely new result. On the other hand, hydrotherapy merely affords Nature the best opportunity to continue in her efforts to bring about normal conditions. Thus the art and science of hydrotherapy begins and ends with the observations of Nature's methods.

Allopathy, in general, attacks the cause, and in destroying the cause relieves the disorder. Let us take a simple example. A child of one year is attacked suddenly by cramps and vomiting of sour material. The allopath would prescribe an alkaline and a disinfectant (gray powder, composed of chalk and calo-

mel). The homeopath would prescribe minute doses of an emetic, probably ipecac. The hydropath would give the child water to drink and stimulate vomiting until the stomach was entirely clean.

The treatment of digestive and pulmonary disorders in children is but a modification of the treatment of the same conditions.

PERTUSSIS, OR WHOOPING COUGH

There is a widespread opinion among physicians and the laity that this is a disease of the throat and upper air passages. They point to the cough and whoop, and claim the vomit is but reflex. The hydropath, on the other hand, says that cough and whoop are merely reflex from the stomach spasm, and emphasizes the fact that the vomit alone affords relief. I have no hesitation in declaring that in this argument the hydropath is undoubtedly right, for the promptness of relief is in direct proportion to the readiness of the vomit.

In simple terms, Nature indicates that the empty stomach is her natural avenue for the correction of whooping cough. I have seen cases under this treatment go twenty-four hours without a spasm, and run a mild course in four weeks.

Where it is possible—and this will be in only a small percentage of the cases—gastric lavage two or three times daily will moderate and abort whooping-

cough. However, washing the stomach by drinking water, and relaxing the pyloric opening of the stomach into the intestines can be followed in every case.

LAVAGE FOR CHILDREN

The technique of this treatment is to encourage the child to drink freely of plain, warm water, the object being to render the condition of the stomach as free from irritation as possible. Frequently, the mere drinking of water will bring about vomiting. This vomiting should be encouraged, because of the rapidity with which it affords the stomach opportunity to eliminate all its irritating contents. As the contents become bland, vomiting will cease. Massage of the stomach and pylorus is then indicated.

The method of massage is simple. Beginning just above the pelvis, push the abdominal contents upward and slowly move them from side to side, gradually forcing the hand upward towards the breastbone. This should be repeated until the gurgling sound indicates that the water has escaped from the stomach into the intestines.

This massage should be practiced every three or four hours at the beginning of the sickness. After forty-eight hours, however, a night and morning treatment will meet the necessity. The duration and severity of whooping-cough will be reduced to the minimum by these simple measures.

MEASLES

Measles is an eruptive disease—an ailment in which Nature, in her efforts to eliminate the infection, calls upon the skin as the primary organ of elimination.

After the high colon irrigation, it only remains to aid Nature's efforts by encouraging the sweat glands of the skin to work overtime. For this, the hot, dry pack is best—warm bed covering, in which hot water in bottles or rubber bags is packed. Or you may make the hot air cabinet, as already suggested, by draping blankets over the cot to prevent the escape of the heat, and then generating hot air by an electrical or gas heater.

The duration and severity of measles is in indirect proportion to the duration and extent of the sweat. The more profuse the sweat, the shorter the duration of the attack of measles. As a rule, a ten-hour exposure to the dry, hot air cabinet will completely eradicate the disease. All pulmonary and bronchial manifestations will entirely disappear.

Hot lemonade or hot tea given freely until perspiration appears, and then cold water internally at the rate of at least a half pint every hour in children over five years, and a proportionately smaller amount to younger children, will give best results. If these simple directions are followed in full by the parents or physicians, all danger of deafness or of after effects upon the throat and ears will be avoided.

SCARLET FEVER

Scarlet fever is in the same class of diseases as is measles. The attempts to meet Nature's efforts are the same as those of measles, but must be more vigorously employed. The hot, dry cabinet should be continued for ten hours, at least, and the drinking of water more earnestly encouraged. If this be done, no trouble in the kidneys will result. The elimination by the kidneys, and the subsequent nephritis (inflammation of the kidneys) comes simply because the skin fails to eliminate the toxins, and requires the assistance of the kidneys to perform this function.

The double affliction of scarlet fever and diphtheria is frequently present in the same infant. The treatment in these cases is the same, for as the skin is encouraged rapidly to eliminate the infection, it is substituted for the mucous membranes of the throat as the avenue of elimination of the diphtheria infection.

URTICARIA OR HIVES—NETTLE RASH

This disease owes its origin to a chemical source, in contrast with the bacterial origin of measles and scarlatina. Here the sweat affords only temporary relief, unless supplemented by other measures. The origin of this chemical abnormality will be found in the digestive canal and in the food. Vegetable foods

are almost as prone to generate this excess of irritating acids as are meats and fish. High colon irrigation should supplement the sweat.

A prolonged exclusive diet of diluted milk over a period of several weeks will be found valuable in this trouble. The addition of powdered chalk or milk of magnesia to the milk will neutralize somewhat the irritating acids in the stomach and intestines.

CHOLERA INFANTUM

This disease is extremely prevalent in all sections of the United States. It is a disease of warm weather, as a rule, existing in milk-fed children. The stool shows liberated saponified fatty acids in abundance, together with large numbers of lactic bacilli and streptococcus and swarms of colon bacilli.

In distilled water all these bacteria are practically inert. Therefore, in from 72 to 96 hours, in a distilled water medium, they lose their characteristics and die. This indicates the use of distilled water, both by drinking and by colon irrigation. Care should be taken to equalize the circulation by keeping the blood moving freely in the vessels of the skin. When the collapse is not pronounced, the use of the cold, wet pack, extending from the neck to the knees of the infant, is indicated. However, where the collapse is pronounced, the hot dry pack should be used.

In an infant of one year and under, the hips should

be elevated and a half pint of warm water should be injected. This should be repeated three or four times within 24 hours. The infant should be encouraged or even forced to drink water from the spoon or nursing bottle every half hour. In most cases, the addition of sugar will induce the child to drink freely of the water.

All milk should be withheld until the stools are free from the characteristic sour fatty odor, or until the microscope shows a return of the normal amount of the lactic bacilli.

The feeding of children under two years of age during the hot months should be with the idea of maintaining the fats or fatty acids in the blandest state. Nursing mothers should drink freely of water before nursing. Artificially fed children should have the sugars substituted for the fats as far as possible, keeping it in mind that sugars are more readily digested and assimilated than fats. Sugars are not only poor fields for the culture of bacteria, but are actually destructive to bacterial life. The preservative quality of sugar is known to every housewife, yet this preservative power in no way retards the digestive enzymes. Again, the very presence of sugar will promote diastic conversion of starches into sugar. The sugar of barley is particularly well tolerated by the digestive systems of infants under two years of age, as is also pure maple sugar.

In all these conditions, it must be borne in mind

that the internal congestion of the lungs and air passages materially interferes with the supply and the discharge of gases from the blood. Therefore, it is highly imperative that fresh air be admitted to the patient at all stages of the disease.

INFANTILE CONVULSIONS

The vast majority of cases of infantile convulsions are due to gastro-intestinal disturbance. In these cases, the high colon irrigation should be vigorously practiced, with the hips of the infant well elevated. In those cases in which it is impossible to evacuate the stomach by tickling the throat, the stomach tube should be passed through the nostril, and the stomach thoroughly cleansed.

MUMPS

Mumps is a disease in which Nature attempts to throw off the infection through the salivary glands, whence the excretion is ultimately eliminated through the colon. The hydrotherapeutic treatment in these conditions consists of the high colon irrigation, followed by the hot, dry pack of five hours' duration. This procedure will render the attack mild and of very moderate duration.

CHAPTER XXIII

Diseases Peculiar to Men

PROSTATITIS

In my opinion this disease, more than any other, conduces to the advance of age and increasing irritability of temper. The very restraint placed upon sexual indulgence is sometimes sufficient cause for the congestion and distention of the prostatic glands.

The irritation in and about the base of the bladder, originated by a strongly acid urine or accumulated sediment, aggravates the condition. It is fortunate that the proximity of the prostatic glands to the rectum affords splendid opportunity to obtain osmotic action. During the acute stage, rest in bed is highly desirable, though the patient himself may object to resting.

The high colon irrigation, practiced twice a day, gives splendid results in these cases. Also, by thoroughly cleansing the bowel, the waste material of tissue changes is freely eliminated, lessening thereby the excretion of the kidneys, while the absorption of the excess water from the ascending colon dilutes the urine, rendering it bland.

After this colon irrigation and subsequent evacuation, there will be a slow accumulation of water above the internal sphincter of the rectum, to which

the posterior surface of the prostate gland is exposed. This is especially true if the patient will remain in bed during the first 72 hours.

Washing out the bladder with a sterile solution at the beginning of the treatment will add greatly to the comfort of the patient. Massage of a loose, flabby prostate through the rectum will also afford comfort. However, where the prostate is hard and tense, massage should be delayed until the osmotic action of the water in the rectum relieves the condition of tenseness. The treatment by high colon irrigation in chronic conditions should be practiced daily for a period of at least six weeks.

In washing the bladder, the fountain syringe should be elevated about five feet. This will provide sufficient pressure to force the water past the sphincters. Expulsion of the urine from within and the pressure of the water from without will force the water through these sphincter muscles into the bladder. The nozzle of the syringe should be introduced about an inch into the meatus, or external opening. When the bladder becomes full, the contents should be voided, and the process repeated three or four times, to insure complete cleansing of the bladder.

VARICOCELE

Varicocele consists merely of a local varicose vein or veins on the scrotal sac. The prolonged sitz bath

of say, half an hour to an hour before retiring, followed by the local cold, wet pack which is to remain on all night, will within three weeks, usually effect a complete recovery. Subsequently, the parts should be supported by a suspensory bandage.

ALOPECIA (BALDNESS)

Baldness is so largely confined to the male that it may be considered almost characteristic. It should be considered as a form of eczema. Local applications are therefore useless.

The hair glands excrete an odorous, semi-liquid oil. When they are below normal in their activity, the hair and the scalp become subject to a sort of dry decay. Certain factors tend to break down the normal resistance to this process of decay. The tight hat lessens the circulation of the scalp. The alcohol of hair lotions and tonics dissolves and removes much of the residue of oily material, leaving the scalp and hair dry. The strong alkaline in the various shampoos also removes the natural oils in the scalp and hair.

The process of offsetting the progress of alopecia is a tedious one. It means persistent effort. The liver and the colon must be called upon to carry off the infection. Massage of the gall bladder and high colon irrigation must be carried out daily. Eggs should be eliminated from the diet, as they are a

fruitful field for bacteriological activity. The weekly hot-air cabinet pack for a five-hour exposure, keeping the head well covered with cloths to increase the secretion of the hair glands, is all the local treatment necessary.

Soaps used to clean the hair should be as free from alkalines as possible. Massage of the scalp, with stretching of its various muscles, is beneficial. This stretching is done by firmly grasping the brow and the back of the head with the hands, and pushing the scalp and hands towards each other.

CHAPTER XXIV

Ailments Peculiar to Women

Derangements of the sexual functions are classified as amenorrhea (stoppage of menses), dysmenorrhea (painful menstruation), menorrhagia (excessive menses) and metorrhagia (diminished menses).

STOPPAGE OF MENSES

Amenorrhea, except in pregnancy, is due to depleted blood supply, accompanied by mental apprehension. These conditions are noticeably common among immigrant girls, where change of diet and environment, together with discomfort and apprehension, check the normal function of menstruation.

Water in the blood prompts secretion by every organ in the system, so that its absorption is strongly tonic. The high colon irrigation, however, not only prompts vigorous action upon the female organs, but it also eliminates the poisons arising from the inability of the digestive system to accommodate itself to the changed diet and environment.

In these cases, the high colon irrigation, practiced daily before retiring, and accompanied by copious drinking of water on an empty stomach in the morn-

ing, usually stimulates the prompt return of the normal menstrual flow.

PAINFUL MENSTRUATION

This trouble in a very high percentage of cases is produced by a malformation or malposition of the womb. This causes an obstruction to the discharge, and reflexly, an excessive contraction in an effort to expel, causing congestive inflammation of the organ and its membranes.

The high colon irrigation, by keeping the colon empty, primarily affords space for the womb to develop within the pelvis.

The most frequent cause of displacement of the womb is constipation. The womb is balanced in suspension by the broad ligament, with the cervix portion of the womb pressing against the walls of the rectum. The weight and pressure of a large stool is very apt to bend this cervix downward. Then we have the condition known as "antiflexion"—the most common condition found in dysmenorrhea. When the pressure of the stool is more severe and of longer duration, we have a complete turning of the womb, which condition is called "retroversion," the second most frequent condition found in this disorder. Thus it can be seen that the high colon irrigation benefits mechanically, as well as in other ways.

The simple act of kneeling and dropping the

shoulders to the floor, remaining for some minutes in this position, is of marked benefit in favoring a return of the womb to its normal position. Standing at the edge of a soft mattress and falling forward with force on the face and stomach will frequently throw a displaced womb forward into its normal position. This should be practiced persistently but with care not to cause other injuries to the person. Also, lying on the stomach while sleeping should be practiced.

In these cases, it is necessary to keep up the high colon irrigation every day for several months.

EXCESSIVE AND DIMINISHED MENSES

These two afflictions are but modifications of dysmenorrhea (painful menstruation), and should receive the same treatment, as outlined above.

Intense nervousness or hysteria arising from these or other uterine troubles may usually be soothed by bathing the breasts, abdomen, hands or feet in cold water, which causes a contraction of the involuntary muscles of the abdominal viscera.

PELVIC CELLULITIS

Pelvic cellulitis may be either benign or septic. Gonorrhea is a frequent cause, although bruises and exposure may bring it on.

In this trouble, osmosis should be practiced with persistence and thoroughness. Distilled water, rather than hydrant water, should be used, because of the specific gravity and disinfectant action of distilled water. Pieces of cotton, tied with a string so that they may be withdrawn, should be saturated with distilled water and introduced as far as possible into the vaginal canal. These should be renewed frequently, to insure a sufficient quantity of water for the proper osmosis. This osmotic action should be maintained for thirty-six hours, in order to effect a reduction of the inflammation.

HYDROBROMIDROSIS (STINKING SWEAT)

This humiliating affliction predominates in women, in the relative proportion of ten women to one man.

The close relation between the colon and the skin as organs of elimination must ever be borne in mind in correcting this disease. Consequently, the high colon irrigation should be practiced daily in these cases, to afford thorough elimination of the waste products. The gall bladder should be stimulated by massage to promote disinfection in the colon, by the presence of bile. The hot, dry pack should be used twice a week during the early stages of the treatment, with the daily cold plunge or cold shower to invigorate the skin and its glands.

CAKED BREASTS—ABSCESS OF BREASTS—FISSURES AND PAINFUL NIPPLES

The treatment of these conditions is both preventative and curative.

Following the birth of the child, a cold wet pack should be applied over the chest, covering both breasts, and maintained at two-hour intervals until milk is fully established in these glands. By keeping down the congestion, all inflammatory changes will be prevented and the milk-ducts will not be closed.

When troubled with caked breasts, the osmotic action of water should be pushed thoroughly. Every half hour the wet pack should be renewed. Sometimes absorbent cotton, soaked in water, will be found efficient as an adjunct to the wet pack. Pinned inside the wet towel, it will furnish considerable additional water.

When abscess has actually developed, the osmosis must be continued for at least four days to insure complete checking of the processes of suppuration.

Fissures of the nipples will be promptly cured by the osmosis of the wet pack. This trouble should not be treated with any applications of salve or ointment if you are going to use water, as the salve hinders the osmotic action.

CHAPTER XXV

Hydrotherapy in Pregnancy and Birth

Generally speaking, pregnancy is a condition where Nature must be given exceptional opportunities to meet the extraordinary demands put upon her. In other words, Nature must go out of its usual routine to develop capabilities that insure maintenance of health, as well as to provide for the growth of the infant.

From a hydrotherapeutic point of view, water stands forth as the panacea in pregnancy and childbirth. In only one respect is it inferior, and that is in supplying oxygen. This is best furnished by the air.

In order to apply water reasonably, certain physical and physiological facts must be emphasized, in order that these uses may be guided in the proper channel.

Keeping in mind that the mother must not only nourish the infant, but must also eliminate waste material for both herself and her child, it can be readily understood that all organs of elimination must be toned up to a high degree of activity. Therefore, from the early stages of conception, water

should be systematically drunk with some definite purpose.

To regulate the bowels, two glasses of cold water, taken upon rising in the morning, should be the routine practice. Much benefit will be secured by an additional five minutes' gentle massage of the abdomen. This should be continued through the entire course of the pregnancy.

The drinking of mild citrus beverages between meals, as well as the free use of plain water, should be encouraged for its action on the kidneys. I also urge moderation in the use of proteid foods, more especially during the later stages of pregnancy, for proteid foods are too rapidly oxidized and cause excessive urea. Raw starches, such as are found in the apple, are difficult to oxidize. Citrus fruits, such as the orange, are especially valuable because of their solvent properties on the mineral salts and for the manner in which they build up the alkaline reserves of the blood.

The rapid elimination of the mineral salts will go far toward *moderating* the labor of child-birth. With excess of these salts, the bones of the infant prematurely become calcified and resist the molding necessary to conform the parts to the avenue of delivery. Certain foods, such as eggs, are especially abundant in lime salts, and during the last months of pregnancy they should be avoided.

Enlarged and varicose veins *are a very* common

and distressing complication of pregnancy. This results from mechanical pressure upon the veins in and below the abdomen. At noon every day, a half-hour sitz bath in a tub of warm water, for its drainage effect on the veins by osmosis, will be of immense value in correcting varicose veins. The muscular coats of the larger veins will be stimulated by mild massage, supplementing the sitz bath.

The question of bathing is one that requires considerable individual attention. The cold tub, while stimulating, is too severe, and the prolonged general bath too depleting. The cold sponge bath is not so severe as the whole cold tub-bath, especially if the woman can stand in a tub or basin of warm water. The cool shower, standing in several inches of warm water, more nearly approaches the ideal bathing for the pregnant woman than any other.

Colon irrigations are especially beneficial to pregnant women. Keep in mind the physiological fact that the high colon irrigation is especially active in flushing the kidneys as well as the bowels. The only symptom which should be allowed to discourage the fairly regular bi-weekly high colon irrigation throughout pregnancy is emaciation, which may occur occasionally because of the stool being hurried through the large bowel,—the powers of absorption in the small intestines being insufficient properly to nourish the mother.

Pregnancy always means *oxygen-hunger* for the

mother. Apart from the interference with diaphragm freedom, the mother must supply oxygen for the tissues of the child, and ultimately, in the later months of gestation, actual oxygen for the child's circulation. Again, the development of maternity on the part of the mother requires increased oxygen to meet this demand. This indicates the need for access at all hours to free atmosphere.

At the sea-level the air is more condensed and contains relatively more oxygen. Therefore, the pregnant woman, as a rule, thrives better in lower altitudes. Where it is possible, the pregnant woman should move from high altitudes to lower levels, especially after the fifth month. Moderate exercise in the open air is imperative, and the sleeping-room should always be freely ventilated.

With the first evidence of albumen in the urine, or even vertigo and dizziness, the hot dry pack should be used every second or third night. The custom of a regular weekly sweat after the sixth month is of exceptional value to both mother and infant, in that it materially eliminates the waste materials of tissue combustion, and relieves as well the overstrained circulation of the abdominal and pelvic organs.

This sweat can be made a matter of simple routine. The mother drinks a large glass of lemonade, well sugared, and lies in blankets, surrounded by hot water bottles, thus exciting a moderate sweat. After an hour's sweat the bottles can be withdrawn, and

the mother left to sleep the night out. During my early years of practice I made this the regular routine.

My results from dieting were very gratifying. Keeping in mind the fact that the most difficult and painful stage was that of the molding of the head, I sought to keep the supply of mineral salts down to the minimum after the fifth month. The mother was encouraged to live mainly on raw fruits and vegetables, in which the protein content is very small. Oranges stood foremost on the diet, and eggs and the white bean were strictly forbidden. Celery, lettuce and spinach were used freely. To make up for the deficit of carbohydrates, I recommended sugar to be freely used. Potatoes and turnips, well boiled without salt in the water—to promote the removal of the mineral salts of the vegetable—were allowed. Instead of breadstuffs, boiled cereals without salt, but well sugared, were allowed.

Under these restrictions the pains and duration of labor were reduced to the minimum. Two of my cases stand out prominently in my mind, where the mothers delivered healthy boys in less than a half-hour's labor.

The conditions after delivery are just opposite to those of antedating child-birth, and the diet should be abruptly changed to meet the change of circumstances. The mother has had her supply of mineral salts reduced to the minimum. She must now have opportunity to supply the lack. Her diet conse-

quently should now be largely protein. This is more important when the mother nurses her child, as the child's bones require the mineral salts.

During the early stages of labor the deep, warm sitz bath is most beneficial. It somewhat modifies the local pain and by its osmotic action lessens the blood in the perineum, and promotes relaxation and consequent dilation. Before the head passes over the brim, the mother should leave the tubs and hot fomentations be substituted over the parts.

With the beginning of labor, high colon irrigation is very essential and beneficial. If labor be prolonged, a second irrigation should follow, eight to ten hours after the first.

A moderate sweat by means of the hot dry bed pack, promotes the appearance of milk. This may be given the second day after the confinement.

With involution—that is, return to the same physical condition as before pregnancy—much of the surplus tissues must be consumed. The mother therefore should always have free ventilation in the sick room, to afford plenty of oxygen for tissue combustion. Carbohydrates should be somewhat restricted because of the fact that they do not oxidize as readily as the proteids. Neglect of this precaution frequently results in obesity, which explains why more than seventy per cent. of young matrons become fat after child-birth.

In my cases I recommend, after the first day,

copious vaginal douches of vinegar and water as hot as can be tolerated. The refrigerating action of the acetic acid of the vinegar supplements the soothing action of the hot douche.

After the fifth day the local cold wet pack, changed every three or four hours and accompanied by gentle massage, proves of value in restoring the normal figure of the abdomen. The cold wet pack, carried over the breasts, keeps down congestion of these glands, and lessens dangers of caking and cracking.

I do not advise bathing the infant for the first forty-eight hours. The custom of rubbing the newborn infant with olive oil is commendable, for not only does it soften the smegma, but it also assists in keeping the infant warm.

I never advise an abdominal bandage about the infant. In a number of cases I have seen intestinal spasm resulting from a tight bandage around the infant. All male children should have the foreskin circumcised or withdrawn as soon as the physician or midwife can spare time to attend to the infant.

In excessive hemorrhage, when all other means fail, ice or ice water may excite contractions, but is inferior to compression. This compression is performed with one hand in the vagina and the other grasping the fundus of the uterus through the abdominal wall, strong pressure being made toward bringing the hands together. The failure to contract on the part of the womb in these cases is largely the

lack of coördination, but with compression to substitute the contraction of the longitudinal muscles, the circular muscles will automatically contract.

The feeding of the infant, from a hydrotherapeutic standpoint, is important. In breast-fed children a teaspoonful of water preceding the breast, not only serves to dilute the milk, and in this wise promote the emulsion of fats, but it also supplies additional mineral salts. In infants and also in adults, practically no saponified (solid) fats are absorbed, they become only waste material in the stool. Much of the benefit claimed by the addition of lime-water or milk of magnesia lies not in counteracting the acidity of the stomach, but rather in the fact that alkalinity promotes the suspension of oils in the emulsified form. Emulsified fat can reach the blood in but moderate quantities, but saponified fat cannot be absorbed.

The artificially fed child should not be crowded with fats. The addition of cream to the prepared bottle is not only a waste, but it is liable to upset the equilibrium of metabolism, and produce rheumatism or intestinal disorders. The benefit obtained from the addition of cream is from the increased quantities of sugar of milk. Carbohydrates are more readily digested and absorbed than are fats. In all my infant cases where artificially fed, I diluted the milk content from fifty to twenty per cent. with sterile water, and in addition skimmed the cream from the milk. However, supply sugar and starches liberally

by the use of Mellon's, Eskay's or Imperial Granum prepared foods. My cases were practically free from bowel disorders and compared very favorably in growth and development with children otherwise fed.

CHAPTER XXVI

Unnecessary Operations

gastro-enterostomy

There was a time, and within the memory of very young school boys at that, when a case of chronic digestive trouble that didn't sooner or later mean parting with the appendix was an exceptionally rare thing.

So thoroughly convinced were doctors and surgeons, particularly the leaders in the field of major abdominal surgery, of the necessity of appendectomy that the removal of this piece of useless gut from every one, old and young, fat or thin, big or little, was advised as a routine precautionary measure.

The advantages of this procedure having been proved by bitter experience to be decidedly overestimated, the surgeons switched their field of operations from appendectomies to pyloric and duodenal ulcer. Operations for these ailments now outnumber appendectomies.

Originally a very rare operation, gastro-enterostomy (which means the making of a false opening from the stomach into the intestines) has become one of the most common among major operations.

At a very conservative estimate the number of these operations performed in the United States alone will average fifty thousand a year.

Not only are these operations attended with grave shock and serious after-results, but their very purpose is to destroy Nature's method and mechanism. For the ultimate outcome is a constriction of this opening made by the surgeons, through the subsequent contraction of the scar tissue.

In thirty years' close study of the abdominal lesions I may say here that I have not seen more than five cases of duodenal ulcer. Dr. William H. Porter, Professor Emeritus in Pathology at the Post Graduate Medical School and Hospital, New York, more than corroborates this experience. For, in three thousand and five hundred cadavers, of which he made a thorough dissection, he never saw one case that might be indubitably classed as duodenal ulcer.

And yet operations for the correction of this disease are one of the most common procedures in major surgery to-day!

Ulceration of that portion of the digestive tract known as the pylorus—the junction of the duodenal part of the intestines and the stomach—is fairly common, however. It occurs in fully five per cent. of all stomach cases.

The line of the pylorus is never constant. Therefore, many cases are classed as pyloric when in reality they should be classed as ventricular. Be-

cause of the proximity to the pylorus, confusion in the diagnosis is likely to occur.

Failure exactly to locate the ulcer, however, makes no difference in rational constructive treatment. For the treatment is identical with that of pyloric ulcer, and is attended with equally successful results.

In the clinic one sees almost daily cases where the diagnosis and X-ray reading have been made of duodenal ulcer. Yet, upon relieving the sag behind the pylorus from a displaced and twisted stomach, this is shown to be nothing more than a local congestion.

In the treatment of stomach, pyloric or duodenal ulcer, water, scientifically administered, plays a tremendously important part.

However, I have never in any other text book been able to find reference to treatment by "osmosis," as I call this water cure. Yet this is so uniform in its results, and so palpable and readily understood, that it is almost inconceivable that the medical profession has thus far ignored it.

This is the principle of osmosis, simply stated: It may be well to repeat it here, for emphasis. When two fluids are separated from each other by an animal membrane, there is a movement from the heavier to the lighter, to equalize their density or weight. This causes a movement of fluid through one membrane which exerts a most decided effect upon the tissues.

A daily illustration of this is in the washed-out,

bleached, shriveled appearance of the hands of the washer-woman, immersed in the water. The heavier fluid, the blood, is separated from the lighter, the water, by an animal membrane—the skin—and the blood is drained from the vessels and cellular elements of the hands into the water.

By the osmotic treatment, congestive and inflammatory changes become corrected or benign. In the absence of blood and fluids, the bacteria in the ulcerated conditions become inactive, and may even die.

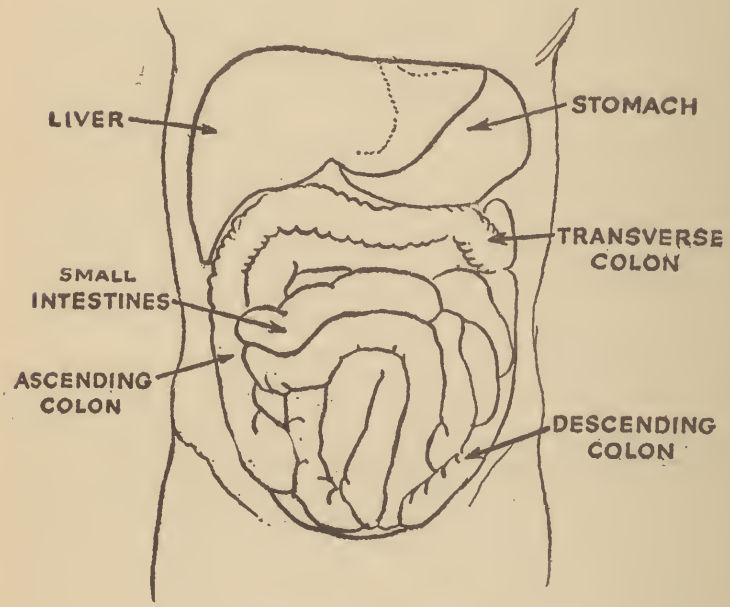
In all my experience, I have never seen a case of ulcer above the large bowels (not barring the ulceration of Peyer's Glands in typhoid fever) that was not rendered practically benign through osmosis. And the results are almost immediate.

With the contraction of the stomach to normal dimensions, the pylorus is obliterated, and we have practically no retardation of the water passing from the stomach into the duodenum. So that, with a contracted stomach, it is only a matter of a few moments to obtain active osmosis in the duodenum.

Duodenal ulcer is benefited also by the antiseptic action of the bile, which, of course, cannot be expected in stomach ulcers. This latter fact is of immense importance. For a daily evacuation of the gall bladder in typhoid fever will go a long way towards checking or averting the disease. In cases of intense activity, with pronounced hemorrhage and marked emaciation, I sometimes supplement the osmosis of

the stomach and intestines by osmosis of the skin. This is done on the theory that the greater the local anemia, the more rapid the destruction of the infection.

In bed cases, under these conditions, the cold wet



THE ABDOMINAL CAVITY

pack should be applied over the chest and abdomen, and changed hourly. This will prove a material adjunct to the local osmosis in the digestive canal.

Under the osmotic action of water, all symptoms of irritation will be relieved. Even the brain itself

will be soothed and tranquilized by the draining action of the osmotic treatment.

Even in cases of marked emaciation, food is far less important than rest. For it is during the period of rest that the greatest amount of reconstructive activity is developed.

During the early stages of treatment for any ulcerative condition, a complete fast for a couple of days is a great advantage. In patients who are plethoric, or even fairly well nourished, a seventy-two hour fast is always advisable, to begin treatment.

After forty-eight hours of osmotic immersion diluted milk may be given in small amounts. The diet can be increased rapidly from this time on, with little or no apprehension of any unfavorable reaction.

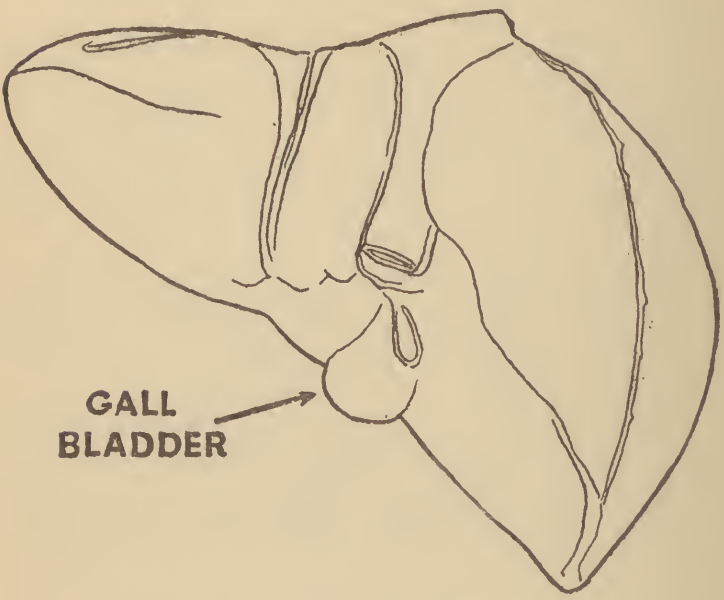
Where the induration (the roughened ulcer surfaces) are very pronounced, or of long standing, osmotic treatment should be given every second day, and continued for several weeks.

GALL-STONE OPERATIONS

Another frequent cause for major surgery of the abdomen is a crop of gall stones. The pain of true gall stone colic, produced usually by the passage of a gall-stone through the gall-duct into the intestine, is one of the most excruciating experiences to which a suffering human can be subjected. No one who

has ever had this experience is likely to forget it in a hurry.

Yet practically five per cent of all people in the United States have, to a greater or lesser degree,



THE LIVER VIEWED FROM BEHIND

Showing position of gall bladder

some defect in biliary secretions. Fortunately, the greater majority of us go through life in ignorance of these defects. For not until the duct that runs from the gall bladder into the upper duodenum is

blocked or irritated by these concretions do we ever suffer any distress from them.

When the stones finally reach the intestines, even when they are of exceptional size, their action is comparatively benign, and they ultimately pass away in the stool.

Right here, I wish to emphasize one fact that permits of no dispute, either from the standpoint of anatomy, or the standpoint of logic. It is this: *Any stone that can get into the biliary duct is not too big to be forced out of the same duct.* Bear in mind also the additional fact that if a stone can get into the duct by the mild expressive contraction and force of the gall bladder, it certainly can go through that duct when sufficient additional force is put behind it.

Nature has been very considerate in the development of many of her structures and processes. Behind the stone is the gall bladder, more or less filled with fluid bile, and below and behind the gall bladder are semi-fluid tissues, capable of exerting additional hydraulic pressure.

We can dilate the bile duct just as the canal in childbirth is dilated, with practical obliteration of said canal through the hydraulic pressure of the fluids within the membranes.

Under proper manipulation, I have repeatedly heard and felt the popping of the stone into the intestines, which showed in the stool to be approximately the dimensions of a large kernel of corn. This

proved that the stone had, with the mild pressure of a contracting gall bladder, been forced through the duct to a point quite near the intestinal opening.

The muscular coat of the bile duct offers but little resistance to dilation. However, the muscular tissue of the pylorus offers practically unsurmountable resistance when in intense spasm. Therefore, it is imperative in removing gall stones that the pylorus be obliterated. With the stomach fully contracted to between the fifth and seventh ribs, the pylorus is not evident, and expression of stones of quite large dimensions is a comparatively simple procedure.

It should naturally be borne in mind that there must be no direct pressure upon the stones or the gall bladder, because of the danger of injuring the bladder or the duct. The pressure must be indirect, with the purpose of obtaining general hydraulic pressure within the gall bladder itself, and of putting the bladder under the greatest pressure.

Hydraulic pressure will always be exerted in the direction of least resistance. The muscular coats of the gall bladder are much more resistant than those of the duct. Therefore, the duct will dilate in preference to the bladder.

Here is the technique for removing impacted gall stones:

After flexing the knees, with the patient in the prone position, I begin at the lowest possible part of the abdomen. Standing to the right side of the pa-

tient, I gather up with my right hand all the gut and omentum the hand can grasp. With my left hand I gather the contents, and press them from the left side of the abdomen to the right, forcing the tissues laterally, using a pressure of from seventy to one hundred pounds.

Gradually I force both hands upward, carrying before me all the abdominal contents I can, and going as deeply into the abdomen as possible.

As I approach the gall bladder my hand will overlap, with the right thumb reënforced with the left thumb. Then I exert the pressure upon the gall bladder. Five minutes of this manipulation will exhaust both the manipulator and the patient, and rest is advisable.

If, after three or four attempts, the gurgling of the bile into the intestines following the expression of the stone or stones, is not secured, I look for further contraction of the stomach. Expression of the stones is sometimes difficult. But perseverance will be rewarded, and the physician will soon look upon gall stone infection as a simple condition, readily correctible. When after persistent effort this method fails, there has, in all probability, been a mistaken diagnosis, and instead of gall stones, we may have to deal with a case of cancer of the pylorus.

APPENDECTOMY

Within thirty years, appendicitis has developed into one of the most commonly diagnosed of all disorders, while the removal of the organ has become almost a routine practice with every surgeon who ever opens an abdomen.

And yet, after practicing the specialty of gastro-intestinal diseases for almost thirty years, and having examined with a fair degree of thoroughness more than fifty thousand people suffering from diseases of the alimentary tract, I wish to go on record as asserting that only a small percentage of cases diagnosed as appendicitis are due to acute suppurative inflammation of this part—or are in need of surgical operations.

Also, it is becoming increasingly obvious to many observers that the old weather-beaten yarn about the grape seed is now only rarely dragged out of its moth-ball cushion, while the tying of the appendix into knots from adhesion with outside tissues is generally regarded as equally absurd.

Remember that the evolutionary destiny of the appendix is to shrivel up and disappear. Generations far in the future will have no appendix. It fills no useful purpose in the animal economy. The structure of the appendix is practically that of a lower order of the gut to which it is adherent, containing degenerated mucous, muscular and serous coats. Its circulation,

as a rule, is much lower in character than that of the adjacent gut, so that the opportunities for its becoming diseased through congestive blood changes are very much less than are those of the stomach and intestines.

Again, having no function, the appendix cannot become functionally deranged. So congestive inflammatory changes must be of a very benign type, because they are in no wise aggravated or complicated by functional activity.

Let us look into the location and anatomy of the appendix. On practically all sides, it is protected by the strong bones of the pelvis. It is imbedded in deep layers of soft fat and other soft tissues, lying like a precious jewel in a soft case within a steel vault.

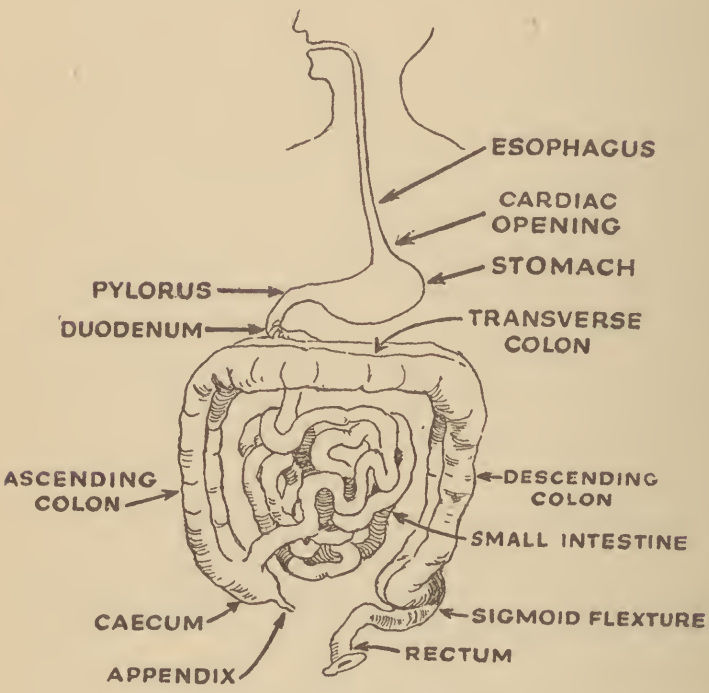
It is probably the best protected part of the human anatomy so far as infection, blows or thermal changes are concerned.

Yet the appendix is credited with being among the organs most subject to infection. If we admit the possibility of adhesions, we must also admit that, as a rule, fat does not form vicious adhesions. And as the appendix lies largely within the omental fat, what harm is done by adhesions?

There is no activity, either muscular or functional, in the appendix, and adhesions are extremely slow and chronic in their formation. So that if the adhesions have any action whatsoever, it is but the hastening of what nature attempts to do, that is to

shrivel up this useless piece of gut, and get it out of the way.

Now let us look into the far-fetched means of diag-



The Course of the Alimentary Canal

nosis. The diagnostic point of greatest value is local tenderness and rigidity over McBurney's point, midway between the navel and the outer and upper projection of the pelvis. Anatomically, what do we find

here? Merely a turn in the duodenal portion of the small intestine, where it joins the jejunal portion of this part of the gut. The appendix lies much deeper and more within the pelvis.

The nature and location of the spasmodic pain is the next important symptom. Usually the pain radiates upward toward the left, and sometimes across the stomach region. In substance it follows the line of the duodenum to the stomach, often involving the stomach itself, as well as the common duct and the gall bladder. These parts of the digestive tract are almost twenty feet remote from the appendix. In other words, if a diseased appendix were the cause of these symptoms, then must the distress play leap-frog over twelve feet of jejunum and eight feet of ileum before it lands on the duodenum and stomach.

Vomiting is the next important symptom. An organ with no function of muscular activity becomes congested twenty-odd feet remote from the stomach, with which there is but the most distant, if any, nerve relationship. Yet this vomiting is accredited with being a reflex symptom of appendicitic irritation. As remote as a toothache or a hemorrhoid!

The logical cause of this gastric manifestation is at least a thousand times more likely to be within the stomach than in the appendix.

Also, with the gastric and enteric cavities alive with fermenting enzymes, and with bacteria by the billions

capable of generating vast quantities of gas and putrefactive changes, a little obsolete, useless piece of gut is blamed for these manifestations!

The chances are not one in a million that the sum total of bacteria within or without the appendix could, under the most favorable circumstances, within a week generate enough gas to cause even distention of the stomach, to say nothing of distending the twenty-eight feet of intestines.

Then, with a blare of trumpets, comes the blood-count diagnosis of appendicitis. Pathologists do not stop with telling how the blood is affected. They also presume to tell from whence the defect comes. Some tall claims to put over on the suffering public!

In weight and bulk, the appendix is not one-tenth of one per cent of the volume of the average child or adult. Yet the appendix enthusiasts presume to exclude the nine hundred and ninety-nine parts capable of the same inflammatory changes and put their finger on this one in a thousandth part.

Let me cite some recent cases. Mr. John Delaney, sixty-seven years old, working in the Federal employ as a distributor in the Post Office Department at the Grand Central Depot, was taken with a severe chill, followed by fever, gastric pain, accompanied by vomiting of persistent type, pain and spasm radiating downward toward the right inguinal region. He never before had distress in this region. This attack struck him while at work. He was taken home in an

ambulance. His physician promptly diagnosed the condition as acute appendicitis and ordered an immediate operation. Consultation with a prominent surgeon verified the diagnosis, and death was predicted unless immediate operation was performed. Never an attempt made to outline the stomach, the pylorus, the gall bladder, the duodenum, or the spleen.

This was a simple and usual form of ushering in a simple attack of tertian malaria. Under fairly liberal doses of quinine, and a simple replacement and reduction of a displaced stomach, the man made an uninterrupted recovery.

Case No. 2. The child of a wealthy family was taken with a severe chill and vomiting. The family physician responded to the hurried call. The vomiting and abdominal tenderness appeared conclusive to him. Prominent surgeons were called, and his diagnosis was confirmed.

The feces and throat were not examined, although the child sneezed, and there was an epidemic of measles in the neighborhood. Neither the stomach, the pylorus, the gall bladder, nor the bowel contents were examined.

Appendicitis and an immediate operation were forced upon the poor little victim. Under an anesthetic the lad almost died. The operation fortunately had to be abandoned, as the case was looked upon as hopeless. When nature had an opportunity

to assert herself, she presented the boy with relief—and a fine coating of measles.

Case No. 3, suffered a long time with distress in the left side which developed two hours after eating. She had money, and she had "chronic appendicitis." It cost her four thousand dollars to get rid of her appendix, and acquire a painful scar.

After leaving the hospital, she suffered from the same symptoms. Therefore a second operation of some kind was thought necessary. Meanwhile, financial difficulty intervened, and it was thought better to defer the operation.

I found this woman to have a simple gastroptosis, or prolapse of the stomach, with spasm of the pylorus, radiating down the duodenum. Five minutes' manipulation restored this condition to normal, and for four months there has been no return.

Case No. 4. A rugged lad of twenty, attending college. He was in a scrimmage with the other students and felt distress in the abdomen, radiating downward to the right side. It was relieved while lying in bed. These symptoms were diagnosed as those of acute appendicitis.

X-ray with the Bismuth draft showed marked gastroptosis with dilation of the entire duodenum. Though the picture did not show it, the surgeon found a thickening of the appendix, and insisted upon immediate operation. Two minutes of abdominal manipulation replaced the stomach, and relieved the

spasms—and the lad has felt nothing in this region for over a year.

In more than ninety per cent of the so-called appendicitis cases sent to the hospital for operation, I found the patients suffering from nothing but simple gastroptosis with pyloric spasms, a condition that will correct itself promptly by rendering the contents of the stomach bland, and by proper manipulation of the organ.

Frequently, to get complete relief, it is advisable to evacuate the gall bladder, so as to relieve the spasm about the pylorus. And often we find a stone in the duct that requires expulsion into the intestines.

In eight per cent of the so-called appendicitis cases, I found enlarged spleen and blood evidences of malaria accompanying the gastroptosis. In one case, I found a general tubercular infection about the ascending colon, involving the caecum. The autopsy verified this diagnosis.

We are only awakening to the realization of what the stomach really is, and are now becoming somewhat ashamed of our former misconception regarding its size and functions. In '93, in Boas' clinic in Berlin, I demonstrated that, under proper manipulation, the stomach could be reduced to a lateral diameter of one inch, and a length of two inches. I proved that in reality this organ, when empty, was practically a continuation of the esophagus, nothing more or less than a curve in the gut, extending from the esophagus

slightly to the left of the median line of the chest, at the fifth to the seventh rib, to the right, where, at the rib border, it became the duodenum.

Further, the "diaphane" (the light lowered into the stomach, showing the stomach outline) revealed that the pylorus, or stomach valve, was obliterated.

Dr. Cunningham, of London, in his work on Anatomy, describes the stomach under contraction as one of the narrowest parts of the digestive canal, and demonstrates this by a series of paraffin molds of the organ. These molds are of such narrowness that they are withdrawn without difficulty through the esophagus.

Dr. Cunningham's experiments also verify the fact that the pylorus, between the stomach and duodenum, has only functional muscular constriction, and is obliterated when the stomach is normally contracted. Direct entrance from the gullet into the duodenum is possible when the pylorus is obliterated.

It is conservatively estimated that the number of operations for appendicitis throughout the United States alone is at the rate of ten thousand a week. One per cent. of our population is already appendixless. At least one per cent. of those die under the operation. Probably ten per cent. of them have painful, serious after-results, physically as well as financially. And thousands have just as much trouble from vomiting, pain and digestive difficulties after the operation as they had before. For the real cause

of their trouble has not been overcome, by the means Nature provided for this purpose—the restoration of the misplaced and twisted stomach and bowels to normal position, which replacement affords instant relief from the pain produced by this twisted condition.

TONSILOTOMY

So great is the craze for the eradication of tonsils in New York City, that the Board of Health is now using compulsory means to force children to submit to this serious operation. A conservative estimate of the number of tonsilectomies performed in the United States annually will probably approach three hundred thousand.

There is a possible excuse for cutting out the appendix, on the ground that this strip of gut is useless, and has no functional value to the human system. However, this same thing is not true of the tonsils, for the tonsils are glands, with a distinct function. More particularly are they glands of excretion, supplementing the kidneys in the processes of excretion of waste materials. Therefore they are characteristically responsive to any derangement in metabolism, acting almost as sentinels to prevent toxemia.

Tonsils are true lymphatic glands and are crowded by leucocytes (white blood cells), capable of pouncing upon many bacteria of infection and decomposition and destroying them. Not only do these tonsils

act as sentinels against bacterial poisoning, but the very excess of leucocytes insures an efficient breaking down of the glycogen, thus fitting it for animal combustion. We have the clinical verification of this in the close relationship between inflammatory conditions of the tonsil and acute rheumatism. Which of these is the cause and which the result, is somewhat like the chicken and the egg problem. Rheumatism comes from tonsilar disease, and tonsilar disease comes from rheumatism. The treatment of one corrects the other.

The very frequency of abscess in the tonsils is conclusive evidence that the infection is being checked and controlled by the tonsils. The usual clinical picture of a tonsilar abscess is that of general toxemia. The intense headache, fever, prostration, and chills are all characteristic of septic toxemia, with the gradual development of pus in the tonsils, and control of the constitutional symptoms. Indican, the constant clinical indication of septic infection, is always present in the urine of these cases.

Therefore the eradicating of the tonsils means simply removing the barrier to many of our gravest constitutional ailments. To what extent pulmonary abscess with tubercular infection results from removing these glands can only be estimated by logical consideration of the manifestations within the decayed lung. Tubercles all have a strong tendency to calcify and become encysted. It is only when the infection

is complicated by active pus-producing germs that we have the formation of abscesses and cavities in the lungs.

Arthritic Rheumatism is the result of improper metabolism. The tonsils are loaded with leucocytes that break down the glycogen in the lymphatics, of which system the tonsils are important glands. Thus the glycogen is better prepared for its conversion into blood plasma. By removing any gland whose function is to promote metabolism, we simply add to the faults of normal tissue combustion.

While it is true that frequently the actual tissue of the tonsil has become largely destroyed in performing its function, nevertheless, the aim of the physician or surgeon should be towards saving as much of the tonsilar tissue as possible. His energies should be directed toward correcting the cause, and not toward eradicating results.

In all cases of inflammation of the tonsil, the avenues of elimination should be stimulated. The food should consist largely of both raw and cooked fruit and vegetables, because of the action on the liver cells, increasing the bile, and thereby increasing the elimination of waste matter. The high colon irrigation should be practiced daily during the acute stages. Where the general symptoms of toxemia, i.e., fever, headache and chill, are pronounced, the hot dry pack should be given for its effect in eliminating the poison through the skin. During the acute stage the ice

pack may be applied externally, although it is of little value in comparison to the other measures. Gargling the throat with a warm saline solution somewhat soothes the inflamed parts to some extent.

In chronic thickening of the tonsils with or without sinus, I have found in several thousand cases very gratifying results by the local application of the tincture of iodine at weekly intervals. Usually after the first application of the tincture of iodine in its full strength much of the induration will be corrected, and usually there will be no discharge of pus. Occasionally it will require as many as four or five applications of the iodine before the organ resumes a fairly normal condition. In these cases the children should be encouraged to eat raw fruit and restricted in their candy and meats. *A child with diseased tonsils should never be permitted to eat eggs in any form.*

REMOVAL OF HEMORRHOIDS (PILES)

Hemorrhoids are nothing but varicose veins in the rectum. They are a result and not a cause. In removing them we simply complicate the condition, without correcting the underlying cause.

Most of the textbooks agree that constipation is the usual cause, but this merely leaves us at another door of inquiry as to what causes the constipation. Through the sympathetic nerve system there is a close coöperation of all the constricting or sphincter

muscles of the body. This is especially true in the relationship of the sphincters of the rectum and the pyloric muscle. This brings on another inquiry;—what will excite pyloric spasm? The answer to this question is: First, food; second, inflammatory conditions of the stomach; and third, misplacements of the stomach.

Such foods as onions, spices and condiments, increase the acidity of the stomach directly by their irritating properties to the gastric glands, and thus increase the acidity of the stomach contents. Nature, in her effort to protect the intestine from an excessive acrid stomach content, causes an increased contraction of the pylorus, and reflexly an increased contraction of the rectal sphincters, and a restriction of the circulation of the hemorrhoidal veins. Alkaloids, such as the caffeine of coffee, by the derangement they excite in the nerve periphery of the stomach, result in excessive acidity of the stomach. I wish here to go on record as saying that it is my conviction that the most common of all causes of hemorrhoids is the morning cup of coffee.

Inflammatory conditions of the stomach are almost always accompanied by improper fermentation, with resulting acrid stomach content and pyloric spasm. Reflexly, we find spasm of the rectal sphincters. One of the most common complications of gastric catarrh is hemorrhoids. One of the most gratifying results in correction of this very common disease is the return

to normal circulation. In twelve years we have found, in the Sanitarium, only one case requiring operation, and this was due, mainly, to the fact that time could not be afforded to effect the proper correction at the pylorus.

With displacement of the stomach, there is always a twist in the pylorus, with accompanying spasm of its muscle. Our experiences in the Sanitarium are convincing proof that, by correction of the cause, hemorrhoids are one of the easiest of abnormalities to eliminate. In practically all our cases, lavage of the stomach, accompanied by massage of the abdomen, with correction of the pyloric spasm, was followed by relaxation of the rectal sphincters and the emptying of the veins. When the condition is acute the high colon irrigation, followed by sitting in warm water for an hour, accompanied by occasional gentle rubbing of the parts with the finger, will do much for the distress.

TEETH EXTRACTION

Some one wrote an article in a recent Medical Journal to the effect that most Rheumatic conditions came from decayed teeth. In other words, instead of the general rheumatic condition deranging the calcareous condition of the teeth, the teeth cause the general condition of Rheumatism. No one has ever undertaken to prove that the condition of the teeth

is the result of self-generated disease, though it has been hinted that without injuring the gums some vicious bacteria has burrowed through these gums and attacked the roots.

It is a fundamental fact that the susceptibility to inflammatory conditions is in direct proportion to the blood supply. Any germ that will cause pathological conditions in the teeth is doubly able to do so in the gums.

This must not be construed as meaning that because of their limited blood supply, teeth are not very prone to decay, for such is the fact. Practically all our cavities are due to the deranged nourishment of the teeth. But the possibilities of our bodies absorbing poisons from calcareous degeneration of the teeth is extremely remote, possibly a thousand times more remote than toxic conditions arising from putrefaction in the alimentary canal. Therefore, it should only be after proper elimination of the alimentary and hepatic sources of Rheumatic deposits, that complete extraction of healthy teeth or any other radical steps should be considered.

I have never, personally, seen any case that justified the removal of sound teeth. Of the hundreds of cases I have seen that had their teeth removed to relieve Rheumatism, I have never seen any result other than aggravation of the symptoms, due largely to the loss of ability to properly masticate food, and thus prepare it for digestion.

As a matter of practical observation I would add that my experience indicates that as a rule people with false teeth suffer more from arthritic derangements than those who still possess Nature's means of chewing the food.

CHAPTER XXVII

Other Diseases

TYPHUS FEVER

It is indeed gratifying to read from a late edition of "The Practice of Medicine," by Professor Osler, the following recommendation:

"Hydrotherapy should be thoroughly and systematically employed. Judging from the good results we have obtained by this method in Typhus cases with nervous symptoms, much may be expected of it."

Of course, in so serious a disease as this, it is best to have the advice of a regular practitioner. The following, however, is my recommendation as to the course of treatment:

Typhus fever being an eruptive disease, it is apparent that we need increased activity of the sweat glands, which is best attained by the use of the hot dry air pack. Because of the tendency to heart weakness in this disease, it is very imperative that during the application of the hot dry pack, the patient should be allowed to breathe cool, fresh air. As the disease brings on extreme prostration, the patient must have complete rest, and should even be

lying down when the hot dry air pack is given. Again, the pack should not exceed five hours in duration, but should be given daily during the first three days. Rarely after the third exposure to this hot pack will there be any manifestations of the disease.

Obstinate constipation is the rule in these cases; therefore, the high colon irrigation will promote good results if practiced twice daily.

Dr. Cane stated recently, in discussing the epidemics in Havana, that the best results were obtained by feeding the patients all the hot molasses they could drink, and by sweating them out thoroughly.

THE STRANGE DISEASE, EPILEPSY

What is epilepsy, whence it comes and why, are questions that the physician has been unable to answer. Pathologists, as a rule, agree that the actual convulsion is produced or accompanied by a congestion of the upper part of the spinal cord and the base of the brain.

The causes of this congested condition are frequently found in something more or less remote. Blows on the head, worms during childhood, autotoxæmia, unrecognized malarious infection, displacement of the abdominal organs—especially when accompanied by bulimia (excess of appetite)—and constipation, are prominent causes. These irritating factors should be sought for and removed.

The most important thing from a hydrotherapeutic standpoint, is to maintain normal circulation in the brain and spinal cord. This can be brought about most effectively by promoting osmosis in the stomach and intestines through the free drinking of water and colon irrigation. I have seen a considerable number of epileptics in whom the simple procedure of drinking two glasses of water on an empty stomach one-half hour before breakfast, together with irrigation as suggested, resulted apparently in complete cure.

The close relationship between the gall bladder, the liver, and the brain and spinal cord, is rarely emphasized. In sluggish conditions of the liver, the vertigo or dizziness which often appears simulates pretty closely the symptoms of epilepsy. I have seen many cases in which the irritation was due to displaced stomach and hardened gall bladder. The correction of these two factors, accompanied by water-drinking half an hour before breakfast, resulted in the disappearance of both types of epilepsy—i.e., "petit mal," or the less severe, and "grand mal," or more severe variety.

In cases where the passage of water is retarded, as is manifested by constipation, high colon irrigation should be practiced daily until the morning draught secures copious evacuation.

The fine line of diagnosis between the "Jacksonian" epilepsy, or epileptoid convulsions, and true epilepsy, is of no importance to the hydropath, for as

their physiological indications are identical with those of true epilepsy, their treatment should be the same.

I know of no reason for moderation of the diet. However, the fact that diluted milk stimulates a modified form of osmosis and is at the same time substantially nourishing, should indicate its use. When the liver is sluggish, vegetables, such as beet tops, spinach and celery, together with liberal quantities of raw fruit, are of benefit because of their stimulating effect upon the secretion of the bile.

The results obtained from the osmotic treatment of epilepsy are astonishingly satisfactory, even in senile cases. Not infrequently, there will be no return of the convulsion after the first irrigation.

ST. VITUS'S DANCE

Where the trouble is not due to actual organic destruction of the cerebro-spinal tissue, the probability of recovery under hydrotherapeutic treatment is extremely good. Recovery, however, will be gradual.

In addition to the osmotic treatment, as described under the heading of Epilepsy, the prolonged hot bath before retiring is decidedly beneficial, because of its sedative and sudorific action. The patient should be encouraged to remain in the bath from three-quarters of an hour to one hour at a tempera-

ture of 110° to 120° Fahr., and then to lie between blankets.

POISONING

In corrosive poisoning, such as lead and bichloride of mercury poisoning, and also in arsenical poisonings, the skin offers the most favorable avenue of escape, for frequently the kidneys are so seriously affected by the elimination of these poisons that death occurs in a large percentage of cases.

LEAD POISONING

As a very general rule this disease is gradual in its onset. It is found largely among painters, lead molders, plumbers and compositors. So-called painter's colic is nothing other than the distress produced by the paralyzed condition of the intestinal canal. The "wrist drop" and the "ankle flop" are also manifestations of paralysis. The blue line of the gums indicates that the deposits of lead are general in the mucous membrane.

Stimulating active elimination through the kidneys almost invariably results in producing a degenerating inflammation of these organs, not infrequently resulting in chronic Bright's Disease. In these conditions the hot dry cabinet pack should be persisted in systematically every second day, until all manifes-

tations of the poisons have subsided. The hot cabinet pack should last from four to five hours. The diet should be low in protein (nitrogen compounds), and should consist mainly of cooked fruits and vegetables.

BICHLORIDE OF MERCURY POISONING

Because of the widespread use of the bichloride of mercury as a disinfectant not infrequently these tablets are taken either with suicidal intent, or by accident. Gradual fatal degeneration of the kidneys has been the almost invariable result. A recent case, however, will illustrate the hydrotherapeutic treatment of these conditions, and show the marked advantages of water, properly applied, over all other forms of treatment.

Mrs. S—, in a darkened bathroom, mistook a solution of bichloride of mercury (7½ grain tablet dissolved) for drinking water, and swallowed practically all of it before she detected its characteristic taste. Her physician hurried her in a taxi to the clinic, where I thoroughly lavaged out the stomach contents. After this, following a high colon irrigation, she was placed in a hot dry cabinet pack for a six hours' sweat. Examination of her urine the next morning revealed traces of albumen and of mercury. She was then subjected to an eight-hour exposure in a hot cabinet pack. The following morning the urine was normal. There were no evidences of mercury. How-

ever, I insisted upon an additional eight hours' exposure to the hot cabinet pack. It is now several months since this incident, and no manifestations are present at this date.

As long as there is any trace of albumen in the urine, the hot cabinet pack should be used daily.

ARSENICAL POISONING

This condition is found largely among paperhangers where the arsenical dyes used to color the papers are the source of the infection. The onset of this poison is so very insidious that in a very large percentage of cases it is not recognized. The main characteristics are the excessive prostration, anemia and mild disturbances in the kidneys. These cases are frequently mistaken for anemia, chlorosis, or malarial cachexia. Recovery is always slow, the symptoms persisting for many months. When a paperhanger, a dyer, or a user of arsenical dyes feels himself continually tired, and when he looks pale, he should change his occupation. The great danger in these cases is the fatty degeneration of the kidneys with consequent Bright's Disease. The tri-weekly hot cabinet pack of four or five hours' duration should be persisted in for at least five or six weeks in order to protect against degeneration of the kidney.

CHAPTER XXVIII

Minor Ailments of Daily Occurrence

BRUISES

Where the bruises are extensive, the prolonged warm bath, to drain off the congestion and inflammation, is the chief remedy. The baths should be fully one hour in duration. It will be found that much of the discoloration and soreness will have disappeared after this long bath. Where the bruise is local, the cold wet pack should be applied to the injured area and maintained from 24 to 36 hours.

SUNBURN

The usual sunburn is about the face and head, and the possibility of a long immersion of the head in a hot bath is out of the question. Because of the reflex internal congestion, and the mental and gastric symptoms which frequently accompany a prolonged exposure to the sun, general osmotic action is necessary. Not infrequently pneumonia is developed from this internal congestion, resulting from exposure to the sun.

The so-called "brain fever" following severe exposure is another illustration. The use of the ice-

bath, as practiced in many hydrotherapeutic institutions, cannot be too severely condemned. The nerve periphery in the skin is over-sensitive after long exposure to sun, and the shock of the cold water drives the blood into the internal organs with increased intensity, endangering the patient's life from possible apoplectic complications.

In cases of severe sunburn, the osmosis should be internal as well as external. The temperature of the general bath should be about 100°, and should be maintained at that until the patient experiences a general sense of relief. Usually an hour's stay in the warm bath, following the high colon irrigation, will afford splendid results. The patient should then be placed between light blankets and a mild sweat encouraged.

In local sunburn of the face and shoulders, the cold wet pack, changed at half-hour intervals, with either a tube in the mouth or nose exposed for breathing, this pack maintained from eight to twelve hours, will usually completely correct the condition.

SPRAINED JOINTS

Sprained joints require rest and support. Osmotic action will relieve the inflammatory changes. Where it is impossible to obtain osmotic action through immersion in the bath, the cold wet pack should be maintained for from 48 to 72 hours.

HEADACHE

It should be thoroughly understood that headache is merely a symptom—not a disease. It usually indicates a poisoned condition in some part of the system, and in a majority of cases may be traced to some digestive disorder or abnormality—plain indigestion, gastritis, constipation, sluggish liver and so on, the treatment for all of which has already been outlined. Catarrh will almost inevitably cause headache, as will kidney and bladder troubles. Some headaches may arise from anæmia, others from high blood pressure. Overheated rooms, improper ventilation, sun-glare in the eyes and other causes may be named. Headaches usually presage the coming of colds, influenza, typhoid fever and many other acute diseases. They attend practically all the female disorders.

A case of headache should never be combated by dosing oneself with drugs. Incidentally, some of the most insidiously harmful drugs on the market are those coal-tar derivatives which are sold to deaden headache. Seek out the disease of which the headache is a warning, and strike at that. Exercise and fresh air are great enemies of headache, as they remove many toxins from the blood.

Headaches may often be relieved by very cold wet cloths applied to the head, forehead and back of the neck. Part the hair here and there and rub the scalp

with the finger-tips dipped in ice water. If the headache is very severe, give alternate hot and cold fomentations to the head and face; those over the face and eyes are found to be particularly soothing. Protect the eyes from the sudden changes in temperature by laying smaller cool cloths over them.

Headaches may sometimes be caused or aggravated by cold extremities, especially cold feet. Sedentary brain workers have so much blood drawn to their brains by their long and arduous thought that they may be said to be suffering from a mild form of congestion of the brain. Immersing the feet and hands in very hot water at the same time that cold compresses are applied to the head and neck will often draw blood away from the brain sufficiently to afford relief.

If one is a chronic and persistent sufferer from cold feet, it is advisable to improve their circulation in this manner, place side by side two basins of water, one as cold, the other as hot as can be borne. Immerse the feet in the hot water for two minutes, then in the cold for half a minute. Repeat this up to twenty or twenty-five times. Then hold the feet in the cold water for a minute or two and dry them thoroughly with a rough towel. Do this once a day for several days, and the stimulative massaging thus given the blood-vessels will usually cure the most obstinate case of cold feet.

If headaches are due to unsettled nerves, the treat-

ments I have described will afford relief for the time being, but should be supplemented by rest for both body and mind, outdoor exercise, tonic and sedative baths at the proper times, and cleansing of the alimentary tract by water drinking and irrigation.

SORE THROAT

A considerable percentage of cases of sore throat are merely an early manifestation of rheumatism. Therefore, the high colon irrigation, as in rheumatism, is indicated, followed by the prolonged sweat, which should be maintained for at least four or five hours. Sore throat which is attendant upon a cold should be treated as described in the chapter on "Colds."

CHAPTER XXIX

Hydrotherapy and Other Systems of Medicine

HYDRO-HYGIENE AND THE ALLOPATHIC PHYSICIAN

It is with considerable gratification that I begin this chapter by stating that I am a graduate of two prominent Schools of Allopathic Medicine. My examination papers in this State showed me to have received one hundred per cent in the subject of Materia Medica. With these qualifications, I naturally became a reluctant convert to the practice of hydrotherapy. It was only when I became convinced of the superior excellence of this later school of therapeutics that I gradually abandoned the uses of medicine for the correction of most ailments.

Hydrotherapy, like all systems of medicine, religion and government, has its limitations. For instance, in pediculi capitus or pubis (body or crab lice), water cannot destroy the insect, and is practically useless, unless it be to dilute the Lysol which destroys these vicious parasites. On the other hand medicine is at best uncertain, when used internally, and its efficiency always results in physiological reaction. This frequently interferes with the normal processes of restoring normalcy.

On the other hand, Hydrotherapy, working solely

by physiological and physical means, is prompt in its effects. It merely supplements natural attempts to correct abnormalities, and is attended by practically no reaction that checks return to normal functioning.

Let us take a simple case to illustrate,—scarlet fever, for instance. We control the fever with aconite, and the infection by quinine. The usual course runs nine days, and the subsequent nephritis may last several weeks, or it may be actually chronic. We smear to prevent the scales from spreading the disease. The case is usually a grave one requiring constant nursing and good attention. The child becomes emaciated. His nourishment occasions much concern. The expenses are high, and therefore you, the doctor, are often the last to be paid.

On the other hand, the Hydropath puts the infant in a hot dry pack, or a hot cabinet dry pack, either improvised or made according to some design. The mother or nurse is directed to give the child plenty of water to drink and maintain the sweat for from six to eight hours.

During this time the child will go through all stages of the disease, with no complications nor menace of kidney involvement, and the next day will be practically recovered. No expenses for medicine, nurse and other incidentals. You will have accomplished your great incentive, that is, curing the sick, and the chances of collecting your fee are a hundred times enhanced.

Above all things, you will have ceased to be a distributing agent for proprietary medicines of which you know nothing save what is printed, truthfully or otherwise, on the label, and will have become what you studied so long and sacrificed so much to be; that is, a man of science, treating scientifically; not by guesswork and uncertainty.

HYDROTHERAPY AND THE HOMEOPATHIC PHYSICIAN

Doctor Homeopath, you and Dr. Hydropath are victims of misunderstanding. Dr. Allopath has the same skepticism of your ability that you have of Dr. Hydropath's. As you say of the Allopaths, "Lord, forgive them, for they know not what they do." So also Dr. Hydropath extends the same prayer for you. Now let us get down to some hard logic.

You attempt to cure by creating with your remedies conditions similar to those that Nature excites by disease. Why? Simply because by increasing the severity of the abnormal condition, Nature will react with increased effort to correct both. But when you follow this line of treatment you are in the field of uncertainty. You cannot conclude when, how, and to what extent Nature will react,—or even if she will or will not react.

Primarily your boast is, that your treatment is superior to that of the Allopathic school, in that you do not go against Nature, and cannot injure or poison

the patient with your drugs. Admitting the truth of this, the very effect of increasing the intensity of the abnormal condition in the tissues and system not only delays reaction, but also increases it. And like a pendulum that has been swung too far backward, it is very prone to swing too far forward.

If your "very high dilutions" are non-irritating, they are much more active than is water, which is a very prominent normal constituent of the body. The action of water is direct, therefore instead of exciting conditions such as your drugs are used to cause, it affords avenues for Nature to meet the abnormalities and to correct them.

Hydrotherapy will prove an astonishment to you, Brother Homeopath, as it did to me, a humble Allopath. You can accomplish more in five minutes with water, properly used, than you can accomplish in five hours with your pharmacopœia. In five minutes you can reduce your pneumonia patient to normal temperature, free his respiration, relieve the cough, and restore the heart to slow, normal rhythm, by the simple use of water, as described in the little volume.

I do not suggest that you discard your pharmacopœia. Water will not control the pains of labor, although it can render them less severe. But if you will undertake to use the methods of water treatment as set forth in this volume, you will find them so very superior to all other treatments that you, like myself, will become a convert.

OSTEOPATHY AND HYDROTHERAPY

Dr. Osteopath, I have long sympathized with you. In many cases you have produced such gratifying results by your manipulations when drugs failed that the limited field of your endeavors and privileges are naturally irksome to you. Hydrotherapy removes these restrictions. Practically every ailment, except the destruction of insects and parasites, is readily curable by the proper use of water. The packs, the sweats, the irrigations, both of stomach and colon, are daily being more commonly used to supplement the methods you employ. So bland and harmless are the effects of water that there are no legal restrictions in its uses.

CHIROPRACTIC AND THE "WATER CURE"

Dr. Chiropractor, no matter how great your confidence may be in the benefits derived by correcting spinal defects, you cannot logically satisfy yourself that this correction will remove a gall-stone from the gall-duct or replace a prolapsed stomach. Instinctively you recognize the benefits of your science within the medical field, yet you also wish to enlarge upon your field of usefulness. Hydrotherapy is the means of opening up almost unrestricted fields of therapeutic endeavor, and places at your disposal safe, sane and natural methods of correcting disease.

CHRISTIAN SCIENCE AND HYDROTHERAPY

The great confidence in the workings of the Divine, through Nature, to meet and correct abnormalities by the followers of the teachings of Mary Baker Eddy are largely identical with the purposes of hydrotherapy. Christian Science relies on Nature; hydrotherapy reduces to science the efforts of Nature to correct abnormalities. The Christian Scientist, through following the teachings of hydrotherapy, gains a better understanding of Nature, and is enabled to coöperate with Nature in promoting health.

The confidence that the Christian Scientist has in the working of the Divine, through Nature, and the conviction that disease is merely the working of the Divine in an unusual manner, gives to the unfortunate sufferer a cheer and content that enables Nature to best perform her work under all conditions. A healthy mind naturally tends to prompt restoration to a healthy body in that it does not add to the depletion or disorder, and frequently a healthy mind will prove sufficient to enable Nature to work out its own correction.

The Christian Scientist recognizes that food is essential for nourishment,—Nature requires it. The Christian Scientist recognizes that rest is necessary, —Nature requires it. The Christian Scientist recognizes that under certain circumstances more rest and

more food are required than under other circumstances. The Christian Scientist recognizes that Nature prompts the indulgence of those means that Nature requires. The hydropath and the Christian Scientist are alike in that their efforts are not intended to supersede the efforts of Nature. But the hydropath goes further, and makes a science of those things which Nature requires. Christ and his Disciples bathed their feet after the long walk because of the refreshment this act afforded them. Miracles were performed through the medium of water; so that there is nothing in the purpose of the teachings of Christ nor in Mary Baker Eddy's revelations that are antagonistic to the use of water as a means of helping Nature. When the scientist healer assumes the responsibility of being a means of helpfulness to those who apply for help, he should be fortified by natural methods to assist Nature.

Hydro-hygiene is of especial interest and value to the Christian Scientist. The assurance that "the Lord will help those who help themselves" is fortified when, by the instructions received in this work, a natural means is afforded for assisting the workings of Nature. Every instinct and every observation prompts this conclusion. The dying plant will be refreshed, and grow, when bounteously supplied with water. The fretful, feverish child will sink into restful repose when water is properly supplied. The pangs and desires will be quieted, and God and his

workings will be better revealed by the scientific application of this natural means.

It is as absurd to exclude the uses of water in the correction of unusual conditions as it would be to bar the use of water from washing unusually dirty hands and face.

MISSIONARIES, NURSES AND MASSEURS

The study of the application of drugs for the correction of disease is profound and conflicting. The results from drugs are uncertain and not infrequently harmful. On the other hand, hydrotherapy is simple and readily understandable and can be applied to the correction of practically any condition outside the destruction of parasites such as lice.

The Missionary will find it of immense value to correct fevers, distempers, epidemics, etc., and even in the most remote districts water can usually be found.

Nurses will prove water treatment to be of immense value in every emergency. Masseurs will find it wonderfully efficient as a supplement to their manipulation.

To CONCLUDE, the constant use of water scientifically applied, will prolong life and increase the sum total of good health beyond the highest expectations of all except those who are already fortunate

enough to be personally familiar with this method of healing by water. Frequently it may be necessary to have counsel in arriving at the exact illness or mode of application of the hydro-hygienic principles. Dr. Graham and his associates are equipped to afford you every assistance you may desire and will promptly answer any communication you may wish to send to them.

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INDEX